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HAY-FEVER;

OR,

SUMMER CATARRH:

ITS NATURE AND TREATMENT.

INCLUDING THE EARLY FORM, OR "ROSE COLD;" THE
LATER FORM, OR "AUTUMNAL CATARRH;" AND
A MIDDLE FORM, OR JULY COLD,
HITHERTO UNDESCRIBED.

BASED ON ORIGINAL RESEARCHES AND OBSERVATIONS,
AND CONTAINING STATISTICS AND DETAILS
OF SEVERAL HUNDRED CASES.

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HAY FEVER

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TO
THE OFFICERS AND MEMBERS
OF THE
UNITED STATES HAY-FEVER ASSOCIATION
THE AUTHOR

Respectfully Dedicates this Work.



P R E F A C E.

THE subject of hay-fever was first forced on my attention in the autumn of 1873, while spending a portion of a vacation in Bethlehem, White Mountains. At that place of resort there were gathered, as usual in recent years, a number of hay-fever refugees, whom the necessities of the disease compelled to remain for some time after the press of summer travel was over. Among these was the late Professor Jeffries Wyman—the mention of whose name suggests all that is most excellent and noble in scientific and personal character—with whom this malady was a family inheritance, and who had therefore enjoyed unusual opportunities for general observation of its peculiarities. From him I learned many facts—then quite new to me—relating to the history and symptoms of hay-fever, and, as an expert in that department of science, he pointed out the fallacies in the infusorial theory of Helmholtz, then becoming popular.

The perusal of the excellent work of Dr. Morrell Wyman on "Autumnal Catarrh," then recently issued, and in connection with it a careful study of many victims of the disease, some of whom suffered slightly from the symptoms even in the mountains,

impressed on me the fact that the whole subject needed to be thoroughly investigated in all its relations, and that until such an investigation was made it would be impossible to establish any theory whatever. All the questions relating to the disease appeared to be open questions; save the general character of the symptoms, and their periodicity, nothing seemed to be settled.

While preparing the first edition of the circular, which was the starting-point of the researches contained in this volume, I gave a provisional acceptance to the idea advanced by Dr. Wyman—namely, that what he terms autumnal catarrh and what is known as “June” or “rose cold” are distinct diseases. In view of the large number of facts afterward obtained, and which are recorded in this work, it was found necessary to abandon this theory, and to admit the substantial identity of “autumnal catarrh” and “June cold.” The probability of this view was enforced by the identity of the symptoms, and was further strengthened by the discovery of a middle form of hay-fever, or “July cold,” hitherto undescribed, and which serves to link together the early and later forms.

The conclusions which will be most likely to excite surprise are those which show the relation of this disease to the nervous system. To those who have given the subject no more thought than is suggested by general observation of cases, and who have been witnesses of the unquestioned fact that the malady numbers among its subjects some who are otherwise unusually strong, it seems beyond belief that hay-fever is more markedly hereditary than any disease of which

statistics have been gathered ; and that the majority of its victims are of the nervous diathesis, and suffer otherwise from an indefinite number of nervous symptoms.

In regard to the nerve theory of hay-fever there prevail two popular misconceptions, which, it is to be hoped, this work may assist in correcting.

First, that nervous susceptibility implies debility and emaciation. Many suppose nervous diseases are imaginary diseases, and get their idea of the nervous temperament from those in whom it predominates, and especially from the hysterical and hypochondriacal, who are always ailing, and who fancy themselves much worse than they really are. The nervous temperament is really consistent with great strength and power of endurance, especially when combined with the bilious and sanguine temperaments ; one may be fleshy and full-blooded, and yet be exceedingly sensitive.

Secondly, that the theory dispenses entirely with the influence of the exciting causes—as heat, dust, pollen, and other irritants. On the contrary, by the facts here collated the potency of these irritants is absolutely demonstrated, and their number is far greater than has been supposed. Individuals vary widely, however, in their susceptibility to different forms of irritation, and not one of these exciting causes nor all combined can avail to produce the disease, except when acting on a predisposed organization.

The theory taught in this book, that this disease is a complex resultant of a nervous system especially sensitive in this direction, acted upon by the enervating influence of heat, and by any one or several of a

large number of vegetable and other irritants, has the advantage over other theories that it accounts for all the phenomena exhibited by the disease in this or in any other country.

The transmissibility of the disease from parents to children; the temperaments of the subjects; the capricious interchanging of the early, the middle, and the later forms; the periodicity and persistence of the attacks and their paroxysmal character; the points of resemblance between the symptoms and those of ordinary asthma; the strange idiosyncrasies of different individuals in relation to the different irritants; the fact that it is a modern disease, peculiar to civilization; the fact that it most abounds where functional nervous disorders are most frequent, and is apparently on the increase *pari passu* with other nervous diseases; and, finally, the fact that it is best relieved by those remedies that act on the nervous system—all these otherwise opposing and inconsistent phenomena are by this hypothesis fully harmonized.

Those, however, who are unwilling to accept this interpretation will in this work find a résumé that is meant to be both impartial and exhaustive of other theories, and of all known facts relating to this affection, wherever observed.

The somewhat arbitrary divisions between catarrhal and non-catarrhal regions, as suggested by Dr. Wyman, do not appear to be sustained by the cases herein detailed, for in nearly every state of the Union the disease occasionally appears, though it diminishes in frequency as we go south, and regions which insure exemption for some are for others of no value.

It is a gratification to know that although from the nature of the disease no specific ever can be found for it, yet remedies almost approaching specifics have already been found for individual cases, and there are few cases that can not obtain more or less relief from some one of the many remedies that have been tested.

The sources from which I have received assistance in gaining information are quite numerous. The physicians, not only of New York and Brooklyn, and vicinity, but of all parts of the country, have co-operated in this attempt to learn the laws of this strange affection to an extent that I can never repay. The publicity given by the leading journals of the country to the fact that these researches were being made has been an indispensable aid, especially in determining the geographical relations of the disease. For the large army of sufferers who have taken the pains to fill out in detail replies to the queries contained in my circular I may express the hope that, without reference to any theory of the disease, the facts herein contained, and which they have helped to accumulate, may prove a substantial reward.

To Frank B. Fay, Esq., Secretary of the United States Hay-Fever Association, I am indebted for the use of much valuable correspondence obtained from the members of that flourishing organization, and also for kindly replies to my queries in regard to the comparative immunity of Bethlehem and other White Mountain resorts. For some of the references to the European literature of the subject, I am under obligation to the work of Mr. Blackley.

The inappropriateness, or, rather, the insufficiency

of the term hay-fever is now quite generally admitted ; for even where the predisposition exists, hay of any kind, fresh or dried, acts as an exciting cause in but a minority of the cases, and rarely, if ever, is it the only irritant that gives rise to the paroxysms. But in this respect hay-fever is no worse than hysteria and other terms that still hold their ground even in scientific circles.

Bearing in mind that this work will find its readers mostly among the laity, and chiefly among the sufferers from the disease, the aim has been to avoid, so far as might be, purely technical words and phrases ; and, while keeping strictly within the limits of science, to bring every point within the comprehension of those who know little or nothing of medicine, save what has been wrought into them by their own painful experiences with this distressing malady.

G. M. B.

NEW YORK, *June*, 1876. }
45 West 29th St. }

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HAY-FEVER:

ITS NATURE, PREVENTION, AND TREATMENT.

CHAPTER I.

HISTORY OF HAY-FEVER.

ATTENTION seems to have been first directed to hay-fever in England, where the first formal description of the disease was given by Dr. Bostock in 1819, in a paper presented to the London Medico-Chirurgical Society. In this paper Dr. Bostock described his own case, under the title, "Case of a Periodical Affection of the Eyes and Chest."* Nine years later, Dr. Bostock read a second paper on the same subject before the same society, going more into detail, and giving a distinct name to the disease, as "*Catarrhus Æstivus*," or "Summer Catarrh."† It is noteworthy that the name then given to this disorder is the one which, in the light of the researches presented in this volume, seems to be the most appropriate.

Prior to the time of Bostock, Cullen had observed that some persons are more troubled with asthma in summer, and particularly in dog-days, than at any other season; and Heberden, in his "Commentary on the History and Cure of Diseases," ‡ had referred in a general way to what is now sup-

* "Medico-Chirurgical Transactions," vol. x, part i, p. 161. London, 1819.

† Ibid., vol. xii, p. 437. 1828.

‡ Ninth edition, chapter "Destillatio," p. 113. London, 1816.

posed to have been hay-fever. In his second paper, Dr. Bostock spoke of twenty-eight cases, eighteen of which were fully reported, and the remainder in less detail.

The disease was spoken of by Dr. MacCulloch, in 1828, in "An Essay on the Remittent and Intermittent Diseases." He spoke of the disease as being caused by hot-houses and greenhouses, and said that, in the estimation of the public, it was especially excited by hay-fields. Just when and where the term "Hay-Fever" or "Hay-Asthma" arose, it is impossible to say; probably it first became known among the people, who observed that the symptoms were brought on or made worse during the hay-making season.

Writers on this subject early began to theorize in regard to the nature of the affection. Bostock supposed that heat was the great cause, and he opposed the notion which arose among the laity that hay had any thing to do with it. He cited a number of facts from his own experience which went to show that, in his case at least, heat and the direct rays of the sun had more to do with the disease than any other traceable exciting cause. He states that one season he walked out frequently among acres of hay-grass, and suffered less than usual, except when it was very hot. Dr. Bostock, however, admits that in some persons the disease was apparently brought on by hay; but he was sufficiently skeptical on the subject to suggest that possibly they might be exposed to hay and heat at the same time, and confound the effects.

In 1829 Mr. W. Gordon published a paper entitled "Observations on the Nature, Cause, and Treatment of Hay-Asthma."* Gordon took the view that hay-fever was caused by the aroma of the flowers of grass, and especially of the *Anthoxanthum odoratum*. This writer had observed that the disease usually comes on as soon as this plant flowers, and disappeared about the time that this plant disappeared; and he

* *London Medical Gazette*, vol. iv, p. 266. 1829.

stated that after the death of this plant patients could go through meadows without suffering. He believed that grass, and not hay, was the cause, and that the disease should be called *grass-asthma*.

Mr. Augustus Praeter, in 1830, published notes of a case that he had once seen in Paris; and in 1831, and again in 1833, the famous Dr. Elliotson referred to the disease, and published a paper upon it.* Dr. Elliotson opposed the heat theory of Dr. Bostock, and rejected also the hay theory, and declared that grass, and probably the pollen, was the cause.

Up to this time the disease was probably not very frequent, for MacCulloch, already referred to, in his treatise published in 1829, while provisionally classing the disease among the intermittents on account of its periodicity, yet states that it is a disorder too trifling to attract much attention.

In 1847 Dr. Ramadge, in a work on asthma† in general, described the symptoms of this disease, and detailed cases. He took decided ground that the effluvia from the flowers of grass, and the "odor of the bean flower," might occasionally cause this variety of asthma.

In 1850 Dr. Gream advanced a step in the study of this affection by the publication of a paper "On the Use of Nux Vomica as a Remedy in Hay-Fever,"‡ in which he declared that the flowers of grass had no more to do with the disease than any other flowers, and brought out for the first time the very important fact that in-door dust and out-door dust were exciting causes. It will be shown in the present treatise that in the United States, at least, dust is the most important of all the various exciting causes.

Gream also observed that the symptoms were relieved after a fall of rain, and he argues that the laying of the dust was the explanation; and, further, he maintained that the

* *London Medical Gazette*, 1831, p. 411.

† London, 1847.

‡ *Lancet*, vol. i, p. 692.

malady was peculiar to the summer, because at this season there was more dust of various kinds in the air.

In 1859 Walshe, in his "Practical Treatise on the Diseases of the Lungs, Heart, and Aorta," refers to hay-fever as "a singular variety of naso-pulmonary catarrh." He states that the disease occurs during the season of hay-making, "or where the odor of grass is powerful," and that the best relief is found at the sea-side, although even there a land breeze brings trouble. Walshe further states that he had "a very precise narrative of a case in which the patient retained his symptoms during a passage across the Atlantic." In my own researches I have been able to find no duplicate of that case; the symptoms of hay-fever, as it appears in the United States, always disappear in crossing the Atlantic between Europe and America.

Watson, in his "Lectures on the Principles and Practice of Physics," published in 1857, discusses the subject, recites some cases, and ascribes the malady to the vegetable matter of the atmosphere.

In 1859 Dr. Hyde Salter, in his standard treatise on asthma, states that periodical asthma is usually winter asthma, but that the disease called hay-asthma begins and ends with the hay season—about a month or six weeks. Among the exciting agents he names "bright, hot, dusty sunshine," laughter, a full meal, and hay. Dr. Salter cites two interesting cases.

In 1859 also, Professor Phoebus, of the University of Giessen, prepared a circular containing seven questions, referring to the geography and ethnography of the disease, its relation to sex, social position, inheritance, constitutional peculiarities, and the time of its occurrence. To this circular Dr. Phoebus received many replies, not from his own country alone, but from various parts of the Continent, from England, and from America; and on the basis of these replies he pub-

lished the most thorough treatise that up to that time had appeared on this interesting subject. Dr. Phoebus noticed the fact of some kind of predisposition to the disease; but the nature of this predisposition he failed to determine. According to the statistics of Dr. Phoebus, hay-fever is an Anglo-Saxon disease, being more common in England than in any other European country; next comes Germany, and then France, Belgium, Switzerland, Scotland, Italy, Russia, and Ireland. Out of 152 patients whose parentage was known, 81 were natives of England, 36 of Germany, and 35 of other countries.

It is probable that at the present time this disease is more frequent in the United States than in England: so far as European countries are concerned, the statistics of Dr. Phoebus may, it is possible, fairly represent the relative frequency of the disease.*

In regard to the exciting causes, Dr. Phoebus took the ground that the first heat of summer may act indirectly, and that the longer days of summer, by giving more light and possibly more ozone, might act as causes. Among the odors and different kinds of dust, he thought that hay and the blossom of rye were the most potent. He suggested, on the one hand, the theory that all of these various causes might have their influence; and, on the other hand, that possibly but one c. the accused causes was the real one. Furthermore, he suggested that some patients might be susceptible to a portion only of these various exciting causes.

Dr. Phoebus, it was clear, had gone into the whole subject far more thoroughly than any of his predecessors; he had pursued it by the true and only method by which the truth

* The number of subjects of hay-fever in the United States is variously estimated at 25,000 or 50,000. The bases of calculations of this sort are not very satisfactory. The United States Hay-Fever Association contemplates, I believe, a census of hay-fever.

in matters of this kind can be reached, and he followed it out with true German thoroughness and persistence.

He failed to solve the problem of hay-fever; but his failure was due to the inherent difficulties and complications of the subject, and not to any radical defect in his method, or to want of ability or energy on his part. Dr. Phoebus, it should be said, appreciated the fact that he had not removed the mystery connected with this disease; he stated his own provisional conclusions guardedly, freely admitted doubts and possibilities of error, and expressed the hope "that future and more accurate observations, especially comparisons of the phenomena of the disease with meteorology and vegetable phenomena, will bring certainty instead of probability and possibility."*

In 1852 appeared an essay by Dr. Laforgue, of Toulouse, entitled "Observation de Catarrhe d'été,"† in which the theory that heat was the exciting cause was advocated. In the following year an anonymous contributor to *L'Abeille Médicale*, in a paper entitled "Un dernier mot sur la Fièvre de Foin," gave his own case, and, judging by that mainly, concluded that hay, and not heat, was the exciting agent.

In July, 1860, Dr. Cornaz, of Neufchatel, Switzerland, published a paper on hay-fever, entitled "De l'Existence du Catarrhe des Foins en Suisse,"‡ giving details of six cases, in each of which the flowers of grass seemed to be the exciting cause.

August 20, 1860, Dr. Labosse, of Nitry, in a paper entitled "Nouvelle Observation de Catarrhe de Foin,"§ spoke of three persons who had suffered from this malady, and stated that their symptoms came on at the time that flowers were

* The work of Dr. Phoebus was entitled "Typischer Frühsommer-Katarrh, oder das sogenannte Heufieber, Heuasthma." Giessen, 1862.

† *Union Médicale*, No. 149, 1859.

‡ *L'Echo Médicale*, No. 7, 1860.

§ *L'Abeille Médicale*, p. 270, 1860.

in blossom. One of his patients, a farmer (a class, by the way, among whom hay-fever is rarely found), noticed that when the period of flowering of a certain herb with which he fed his sheep had passed he could handle it without harm.

In 1866 Dr. William Abbotts Smith published a work with the title, "On Hay-Fever, Hay-Asthma, or Summer Catarrh."^{*} He suggested that strong light and great heat might bring on or make worse the symptoms; and believed also that grass and flowering plants were exciting agents. The ozone theory presented by Phœbus he rejected, but raised the query whether the benzoic acid which, as Vogel had shown, was liberated by the heat of summer from the *Anthoxanthum odoratum* and the *Holcus odoratus*, the grasses that had been shown to have special relation to hay-fever, might be a cause. Dr. Smith relates the following interesting experience of one of his patients: "This year the disease first came on while I was on the sea yachting with a friend. It was a hot day in May, with the wind from the southwest, the nearest land to windward being nine miles distant. I felt myself, after some exertion in assisting to hoist the sails, suddenly seized with sneezing, and I have had it ever since" (up to June 13, the date of the letter).

In 1867 Dr. William Pirrie published a work on "Hay-Asthma and the Affection termed Hay-Fever,"[†] in which two forms of the disease are recognized: one spasmodic, affecting the mucous membranes of the apparatus of respiration, and caused by emanations from flowering plants acting on the nerves of these membranes; the other, in which the exciting causes, as heat and light, act upon the central nervous system, cerebro-spinal and sympathetic. Dr. Pirrie gives very few new facts on the subject, but clearly inclines to the belief that the nervous system is a more important factor in the disease than had been supposed.

^{*} London, 4th edition, 1866.

[†] London, 1867.

Dr. Pirrie admitted that the emanations from grass and hay and flowering plants acted as local irritants, and so excited one form of the disease; but the other form, he contended, did not need any of these external irritants. He insisted that light and heat were factors of great importance in exciting and aggravating the malady; and he also called special attention to the now well-understood fact that there may be premonitory symptoms—languor, *malaise*, insomnia, and irritability, which symptoms in England appear about the middle of May, while the local symptoms appear during the latter part of that month. Dr. Pirrie further insisted, as do most other writers on the subject, on the hereditary character of the disease, and observed, what my statistics have now fully established, that nervous and bilious temperaments are most liable to it.

For treatment Dr. Pirrie recommended quinine, arsenic, iron, and strychnine, and other tonics; and for palliatives the familiar sedatives and antispasmodics—belladonna, cannabis indica, camphor, stramonium, and the inhalation of chloroform. Hygienically, Dr. Pirrie suggested a resort to the seaside, carefulness in diet, the avoidance of exhausting influences, and the keeping clear of hay, grass, flowering plants, and vegetation generally. He admitted that the tonic treatment had often failed; but explained the failures in part by the fact that the patients had delayed until the beginning of an attack, and he distinctly advised preventive treatment in the intervals of the attacks.

This little treatise of Dr. Pirrie is remarkable that in many respects it theoretically anticipates what by these statistics and facts has been demonstrated in regard to the nature of hay-fever, and the true principles of treatment as now confirmed by a large induction in Europe and America. The number of his facts was so limited, and the cases he gave were so imperfectly detailed, that none of the points he

suggested could be considered as proved; consequently, they have not been generally received, and have excited comparatively little attention; they were suggestions, and nothing more, and they left the subject as mysterious as they found it.

In 1869 C. Binz, of Bonn, Germany, published in *Virchow's Archives* (Part I, February) an essay on quinine, under the title "Pharmakologische Studien über Chinin." In this essay was incorporated a letter addressed to Professor Binz by Helmholtz, recommending the local application of sulphate of quinine in hay-fever. Helmholtz stated that he had suffered since 1847 from what the English called "hay-fever;" that the disease came on about the 20th of May, and lasted till the end of June, and that the symptoms were aggravated by exposure to heat and sunshine. Helmholtz further stated that he had found in the nasal secretion at that time "certain vibrio-like bodies" (infusoria), very delicate and small, and which could only be seen with a very good Hartneck's microscope; and on becoming acquainted with the experiments of Binz, in which the poisonous action of quinine on infusoria was demonstrated, he resolved to test the treatment of his hay-fever by this method. Accordingly, in 1867, he injected a solution of quinine into his nostrils, lying on his back and moving his head to and fro, so that all parts might be affected. There was immediate relief; and this treatment repeated three times daily served to keep the disease at bay, and the vibrios disappeared from the secretion. After a few days of this treatment the symptoms entirely ceased, but if the applications were omitted the disease returned.

In 1868 Helmholtz began this treatment early, with the very first appearance of the disease, and succeeded in keeping it off entirely. These vibrios were figured and described in this letter; and it was remarked that they did not come out of the nose with the drops of secretion,

but only after sneezing, and from this Helmholtz argued that they were lodged in the deep recesses of the nasal passages.

This theory of Helmholtz has obtained in this country a wide popularity, in the profession and out of the profession. At the time I took up the investigation it was, so far as I could learn, the dominant theory among those medical men whose attention had been called to it. The great and deserved reputation of Helmholtz in the three departments of physics, physiology, and mathematics; the accuracy and detail of his experiments on which the theory was based; the happy effects in his own case of the treatment by quinine as prescribed in accordance with this view; the absence of any distinct and definite views regarding the disease, either among the profession or the laity; and, finally, the apparent partial confirmation in some instances of the beneficial action of quinine—all these facts tended to give *eclat* to a hypothesis which probably has less foundation in fact than any other that has been suggested. This letter of the distinguished physicist is of value chiefly as being one of the very many illustrations that the history of science has furnished of the fact that, outside of their own special departments, the greatest men make the greatest blunders.* Helmholtz is not a practicing physician, and is not to be blamed for any mistakes he might make in the study of disease; besides, his letter was originally a private one, and was not, it may be supposed, intended to publicly influence professional opinions. The blame, if any, belongs to those who greedily grasp at any thing that has the appearance of thoroughness, without being thorough; who

* The history of popular delusions furnishes many instances of this. I need but mention the report of the second committee of the French Academy on the great delusions of our century, "animal magnetism" and "clairvoyance;" the performances of Elliotson and Gregory in the same department; the experiments of Hare in spiritualism; of Reichenbach with "odic" and of Crookes with "psychic" force, etc.

save themselves the trouble of looking at all sides of a subject by gazing steadfastly at one side.

Even were there no opposing facts of a positive character, this theory of Helmholtz would fail in a negative way from mere lack of evidence. It will be observed that Helmholtz speaks of but one case, and that his own; that, as he himself admitted, he "had found no other patient upon whom he could try the experiment," and no consideration was given to the enormous number of facts that indicate a very different theory of the disease. It should be stated, however, that Helmholtz qualified his hypothesis by the concession that "the vibrios living in the nasal secretions, although they may not be any indication of the specific character of the disease, and are of very frequent occurrence otherwise, still are the cause of the sudden appearance of the symptoms in warm air, inasmuch as they are thereby aroused to greater activity." Experts in this branch of science agree that vibrios similar to those spoken of by Helmholtz can be found in the nasal passages at various seasons of the year. Another consideration of importance that has been overlooked by the advocates of this theory is that hay-fever is not a disease of the nasal passages alone, but that the eyes and the throat are also affected, to say nothing of the asthmatic and bronchial symptoms, and that the disease is very frequently indeed a family inheritance. The explanation of the beneficial action of the local use of quinine in hay-fever will be discussed in a subsequent chapter.

In 1870 Dr. Geo. Moore published a treatise on "Hay-Fever, or Summer Catarrh; its Causes, Symptoms, Prevention, and Treatment,"* in which the complex theory of the disease, so far as the exciting cause is concerned, was advocated. He believed that light and solar heat, and the effluvia of hay and flowering plants and decomposing vegetables, all might have

* London, 1870.

their influence. Like Dr. Pirrie, Dr. Moore contented himself mainly with theories and suggestions, and his work did little toward settling the disputed questions in regard to the disease.

In 1872 Dr. Morrill Wyman, of Cambridge, Mass., gave a new impulse to the study of this subject by the publication of a treatise entitled "*Autumnal Catarrh (Hay-Fever)*." This disease, from which Dr. Wyman was himself a sufferer, had been described by him eighteen years before, in 1854, in a course of lectures before the Medical School of Harvard University; and in May, 1866, he had read a paper on the subject before the Massachusetts Medical Society.*

A leading thought in this work of Dr. Wyman is that in the United States, under the general term hay-fever, two distinct forms of disease are included—the so-called "Rose Cold," or "June Cold," occurring in May or June, and corresponding to the "hay-fever" or "hay-asthma" of England and the Continent, and a later form, beginning in August and lasting several weeks in the fall, to which he gave the name "*Autumnal Catarrh*."†

The symptoms were described in this book in full detail, and the differential diagnosis between the so-called June or Rose Cold and Autumnal Catarrh was strongly maintained. My own researches seem to establish the substantial identity of the early and the later forms of this disease; and have shown also the existence of what I call the middle form, beginning in July, and which is identical with the early and later forms.

* The claim made by Dr. Wyman that the later form of hay-fever is peculiar to the United States is confirmed by my researches, and by all subsequent study of the subject. Dr.

* New York, 1872.

† An abstract of this paper was published in the *Boston Journal*, June 2, 1866. "At that time," writes Dr. Wyman, "of the physicians to whom I applied, very few had met with or even heard of the disease, and doubted its existence, except as an ordinary catarrh."

Wyman further attempted to define the geographical limits of the disease. He states that the so-called catarrhal region extends along the Atlantic coast from the capes of Virginia, in latitude 37° north, northeastward as far as Eastport, Maine, in latitude 45° . Its southern limit is a line drawn from St. Louis to Richmond, and northward it extends in Wisconsin and Michigan beyond 45° . Canada, the region west of the Mississippi, the Adirondack and White Mountain region, Lakes Erie, Ontario, and Huron, the Alleghanies, and a narrow strip in Southern New York, were excluded. My researches show that the geographical limits even of the later form of the disease are not so narrow as this, and that it is found in nearly every state of the Union. Dr. Wyman called attention to the very important fact that residence in certain elevated regions, as the White Mountains, during the season of the attack, brought certain and complete relief in a large number of cases of autumnal catarrh. He states that a lady from Lynn, Mass., who was a great sufferer from this malady, accidentally observed in 1853, while traveling in the White Mountain region, that her catarrh, which for twelve years had never failed to appear on the 20th of August, passed her by; the next year she visited the same region, and again escaped the disease. During the following ten years she always visited the White Mountain region, and always succeeded in escaping the disease. In 1860, Jacob Horton, of Newburyport, Mass., who had been so bad a sufferer from the disease that he had been forced to keep his room during the attack, wrote to Dr. Wyman that the only relief was the White Mountains. Subsequent inquiries showed that many were there relieved, but not all, and that all portions of the White Mountain region were not equally good. Still further it was shown that other elevated regions, as Mount Mansfield, Vt., the Adirondacks, the Catskill Mountain House, and certain portions of the Alleghanies, were

usually, though perhaps not so invariably, exempt from the disease. It was clear that elevation was not the only element, for certain regions, as Stockbridge, Mass., did not appear to give relief.

Dr. Wyman discussed in a clear and candid manner the principal theories of the disease, including the vegetable, animal, and germ hypotheses, and concludes that "we know little of the origin of this singular disease."

The work of Dr. Wyman is noteworthy for its originality, its judicial tone, and the interesting manner in which its facts were presented. If he failed to answer the queries presented by this remarkable malady, it was because of the essential complications of the subject, and because at that time a sufficient number of facts had not been gathered on which to base any reasonable theory. He presents statistics of eighty-one cases of "autumnal catarrh;" but only a portion of these are given in full detail, and many queries that would seem to be of great importance are unanswered. Dr. Wyman was conscious of the insufficiency of his statistics, and he designed that his work should be the means of inspiring other investigators. His own researches would have been more thorough, and his conclusions more just, had he not been under the constant influence of the mistaken belief that the later form of the disease, or "autumnal catarrh," and the early form, or "June Cold," were distinct affections. The result of his adherence to this hypothesis was that he gathered very few facts relating to the early form, and overlooked entirely the middle form, the existence of which he does not seem to have suspected. Nevertheless his work is deserving of high praise, and marks an era in the study of the strange malady to which it is devoted.

In 1873 Charles H. Blackley, a surgeon of Manchester, England, published his "Experimental Researches on the Cause and Nature of Catarrhus *Æstivus* (Hay-Fever, or

Hay-Asthma).”* In this work a new departure is taken, and the theory that hay-fever is caused mainly, if not exclusively, by the pollen of grass, and that the disease might appropriately be called *pollen-fever*, or *pollen-catarrh*, is advanced. This theory is based not on general observation alone, but on very numerous and laboriously carried out experiments. First of all Mr. Blackley gives a somewhat extended review of the literature of the subject, and of the various opinions held in regard to the nature and causes of hay-fever, and then details some experiments made on some of the presumed causes, as *benzoic acid*, which had been supposed to be volatilized from certain grasses by the action of heat; *coumarin*, the odoriferous principle of hay, and various plants; odors of many other volatile bodies, as paraffin oil, camphor, oil of turpentine, oils of juniper, rosemary, and lavender, etc.; odors of various flowering plants, as *Chamomilla matricaria*, *Lilium album*, *Lilium tigrinum*, violets, and various species of rose, and various fungi; ozone, which Kosmann and Daubeney had shown to be generated by plants when exposed to sunlight, and which, when present in very large quantities, has been known to produce asthmatic symptoms, and which Phoebus and Pirrie had suggested might be the cause of hay-fever; and he concluded that none of these agents are capable of producing the full symptoms of the disorder. He further remarks on the supposed influence of light and heat and dust in general, and decides that the importance of these factors had been overrated.

Having thus, as he supposed, excluded all the most commonly accredited causes of hay-fever, Mr. Blackley began a series of most elaborate experiments with pollen. He experimented at first with the fresh and dried pollen of the grasses, and of a large number of plants. In five different ways pollen was tested—by applying it to the mucous mem-

* London, 1873.

brane of the nasal passages; by inhaling it; by applying a decoction to the conjunctiva; by applying fresh pollen to the lips, tongue, and fauces; by "inoculating the upper and lower limbs with fresh, moistened pollen."

When a very small portion of pollen of grass, hardly enough to tinge the tip of the finger yellow, was applied to the mucous membrane of the nares, hay-fever symptoms appeared invariably; a quantity less than one two-hundredth of a grain having a very perceptible effect.

The pollen of rye (*Secale cereale*) produced worse symptoms than that of the grasses—violent sneezing, profuse discharge, and excoriation. In thirty minutes the nostril was shut up, and sneezing and coryza were kept up during the day. The pollen of wheat (*Triticum*) and oats (*Avena sativa*) was about as powerful in effect as that of the grasses. The pollen of barley (*Hordeum distichum*) appeared to be less decided in effect. The effect of the pollen of various plants was as marked as that of the grasses. The inhalation of the pollen of certain plants produced asthmatic symptoms and also constitutional disturbance. One drop of the decoction of the pollen of the *Gladiolus*, placed in contact with the conjunctiva of the right eye, caused almost instantly intense burning and smarting, and a feeling as though sand had been blown into the eye; in six minutes the conjunctiva became œdematous and the lids swelled, and it was thirty-two hours before all traces of trouble had disappeared. One grain of the pollen of the *Alopecurus pratensis* applied to the fauces caused in a few minutes itching, and in half an hour congestion.

Pollen inoculated into the leg over the tibia caused in a few minutes intense itching; in fifteen minutes swelling, which did not go down for four days; there was no pain, heat, nor redness.

These effects appeared to be common to all kinds of pollen, but in varying degrees; the pollen of some poisonous

plants showing no worse effect than the pollen of non-poisonous plants, and in some cases being less severe. A high temperature seems to be favorable to the growth of pollen; a low temperature is unfavorable.

From these experiments, which were made on himself, he found that pollen, in his own case at least, may produce both catarrhal and asthmatic symptoms of hay-fever; and that this effect is common in varying degrees to the pollen of all plants experimented with, although the order *Graminaceæ* possess it more markedly than others. He concluded, furthermore, that the effect of pollen on the mucous membrane was partly mechanical and partly physiological; the former giving rise to the earlier, the latter to the later symptoms. The granular matter of pollen, he thinks, may possess qualities, as yet unknown, that may account for the effect of the pollen; and presents the query whether the granular matter may not find its way through the mucous membrane of the respiratory passages, and thus give rise to the constitutional disturbances that are noticed in some cases. He pushes his theory to the extreme, and claims that cats, rabbits, and guinea-pigs, the presence of which animals in a room is known to excite asthmatic symptoms, are covered with wet granular matter of pollen which their fur collects while roaming amid the hay.

Having proved that pollen could produce hay-fever symptoms, Blackley carefully studied the relation between the quantity in the atmosphere and the intensity of the symptoms. In these experiments the pollen was collected on glass slips, coated with a thin layer of glycerin, carbolic acid, proof spirit, and water. The object was to find out the number of pollen grains deposited each twenty-four hours. These experiments, like the previous ones, were made on himself. The observations were made between the early part of April, 1866, and August 1st of the same year, the slip of glass being exposed twenty-four hours a day. During the first month

little pollen was found; but between May 30 and August 1 there was always more or less present, gradually increasing up to the last week in June, and then declining. In Mr. Blackley's case the hay-fever symptoms rose and fell in pretty exact correspondence to the increase and decrease of the pollen in the atmosphere. He further made the interesting observation that directly after a fall of rain the quantity of pollen was lessened, as one might naturally expect; and between the temperature and the quantity of pollen there appear to be a certain though not constant relation. He found that a small amount of pollen in the atmosphere, such as was observed prior to June 8, did not produce any symptoms in his case. He judged that about ninety-five per cent. of the pollen collected belonged to the order of *Graminaceæ*. In the house, as a rule, he found very little pollen. These experiments were made in the meadows, about four miles to the southwest of Manchester.

The following year (1867) he made a second set of experiments in town—in the outskirts of the city of Manchester, and within the boundary of the most thickly populated parts. The results agreed in the main with those of the previous year, in showing that the quantity of pollen increased during May up to June 23, and then declined to August 1.

The conclusion was that in the city there was about *one tenth* as much pollen, on the average, as in the country. In 1869 he repeated these experiments in another portion of the city behind his own residence; the results harmonized with those of previous experiments.

Subsequently Mr. Blackley made observations to determine the relative amount of pollen at ordinary elevations and at high altitudes. In these experiments he attached the apparatus containing the prepared slides of glass to kites, and succeeded in attaining the elevation of 1500 feet; and he found, to his surprise, that the quantity of pollen was far greater at

great elevations than at the ordinary breathing level, the proportion being, on the average, nineteen to one.

From this condensed survey of the literature of hay-fever we learn : *First*, that the disease is probably a modern one, and peculiar to civilization. While it is conceivable that occasional cases may have occurred prior to the present century, and that they escaped observation by being confounded, very naturally, with common catarrh or asthma, yet it is probable, if not certain, that they were very rare. The periodicity of the affection, and the severity, obstinacy, and protractedness of the symptoms, usually compel attention, and invite scrutiny as to their nature and cause. Then the wonderfully hereditary character of the malady, as established by the statistics of this volume, must in time cause it to become frequent in a few generations after it was once fairly started in society. It is true that physicians of the last century were less observing than physicians of the present ; but it does not require a very close analysis to make out a case of hay-fever, at least after two or three years of observation. For all these reasons, I conclude that hay-fever is mainly, if not exclusively, a disease of modern civilization and of the nineteenth century.

Secondly. Although a vast variety of theories of the disease have been suggested, none have been established, and the whole question of the origin and nature of hay-fever is yet an open one. Hints and hypotheses that, as we now know, were in the right direction, if not absolutely right, have been offered and advocated, and isolated facts, or a limited number of facts, have been marshaled to their support ; but no one theory, either single or complex, has yet been sustained by a sufficient number of facts and considerations to command the acceptance of any large number of impartial investigators.

Thirdly. The failure of the many able and candid students

in this department to solve the problem of the disease, has been due in part to a want of a sufficient number of facts relating to it, and in part to a habit—from which even scientific men are not free—of looking at one side rather than all sides of a subject.

Thus one observer has suggested hay, another flowers, another fruit, another ozone, another heat and sunshine, another germs, or parasites; and in nearly all cases these several suggestions were based on the observation of a few cases, and, in some instances, of but a single case. The experiments of Blackley are admirable, and must command the praise of all who honor industry in a good cause, but they were made only in one line and mostly on his own person; and the author was evidently ignorant at the time he wrote his book of some of the most interesting and important facts connected with the disease. Of Dr. Wyman's book he makes no mention, and it is manifest that of the later form of hay-fever (or autumnal catarrh), as it occurs in the United States, he knew nothing. Even Dr. Wyman's book, on the whole the most thorough and most able of any that has been written on the subject, fails, as no one is better aware than the author himself, for want of a sufficient number of necessary facts.

Fourthly. The first step in the study of hay-fever should be the collection of the largest possible number and variety of facts in regard to it. These facts should be gathered from all countries and from every possible source, and without reference to any theory of the disease. Until this course has been taken speculation is of but little service. In the obtaining of facts the works of previous writers will form an important contribution. This attempt has been made by the present writer, and the results are recorded in the following pages.

CHAPTER II.

AUTHOR'S METHOD OF INVESTIGATION.

THE most obvious sources of facts relating to hay-fever are the writings of the various authors referred to in the preceding chapter, and the cases that one chances to meet with professionally or socially. The literature of this disease is not satisfactory, for the reasons previously given; and the number of cases that fall under the eye of any one physician are so few, comparatively, that all hope of exhaustively studying the subject through personal experience must be abandoned at the outset.

To the method of obtaining facts through circulars there may be in the minds of some certain objections; there would, indeed, appear to be a kind of prejudice against any attempt to gather facts in this way; and as circulars are sometimes prepared and used, this prejudice, it must be admitted, is not without foundation. Questions requiring *opinions* on matters that can not be settled by opinions, and addressed very likely to those whose opinions on any subject are of but little worth, lead away from the truth rather than toward it. General opinions on the subject of the nature and origin of hay-fever had already been offered in vast profusion; theories on theories had been broached, some of which were unquestionably wrong, while others might be partially if not wholly right; the need was to gather an immense supply of facts from every possible source, and out of these to draw, if possible, just conclusions in regard to this puzzling affection. A circular, therefore, should ask for *facts*, and not for opin-

ions; and for facts concerning which physicians and patients could judge. Some of the best works in modern science are based on facts gathered by this method. Darwin's remarkable treatise on "The Expression of the Emotions in Man and Animals" is filled with facts obtained through a circular of inquiry that was sent to all parts of the globe; and Galton, the author of "Hereditary Genius," devotes himself almost entirely to this method of research.

The list of fifty-two questions that I originally prepared was subsequently extended, in a revised edition, to fifty-five. These questions, it will be seen, have a very wide range, and are designed to exhaust all sources of facts of which the majority of patients and physicians were capable of judging. In preparing answers to some of the questions, there were chances of error or of misconception which I have duly considered. Assuming that the answers are all honestly given, it is evident that my knowledge of each case would be as complete, in all the essential facts, as though it had been under my personal observation, and full notes had been taken of the history, the symptoms, and results of preventive and therapeutic experiments. The circulars were not sent to Europe, for the twofold reason that the disease as it appears in England and Germany had already been described with considerable thoroughness by various authors, although not by the method pursued in my circular; and because a sufficient number of cases of all phases of the disease could be found, I felt assured, in the United States. There was little doubt that if the problem of hay-fever could be settled for America, it could be settled for the world, for here are found all phases of the malady that appear in other countries, so far as is known; and, in addition, the later or autumnal phase which is peculiar to this country.

As it was felt to be desirable to find out the geographical limits of the disease, especial effort was made to give the cir-

cular wide publicity in all parts of the country. Copies were therefore sent to the principal stopping-places in the White Mountains, and other places where hay-fever subjects from all parts resort; and the fact that such a circular could be obtained was noticed not only in the leading medical journals, but in a large number of secular papers and periodicals in all sections, so that sufferers every where might have the opportunity of communicating with me if they chose. Circulars were sent also to physicians in different sections North, South, East, and West, from Maine to California, and likewise to many laymen who were victims of the disease.

The United States Hay-Fever Association formed at Bethlehem, New Hampshire, in 1874, and composed of sufferers from this disease from different sections of the country who resort to the White Mountain region, has been, through the kindness of its secretary and their annually published reports, of very great service in diffusing in every quarter a knowledge of the fact that these researches were being made; and some of the members have actively aided in gathering facts, which have been freely placed at my disposal. Still further, a preliminary paper on the subject was read by me at the meeting of the American Public Health Association in Philadelphia, in November, 1874, and an abstract was published in nearly all the medical and very many of the secular journals of the country. The paper was likewise presented before the New York Medical Journal and Library Association the same week that it was read in Philadelphia. I have kept myself in special correspondence on the subject with physicians in various directions, and have seized every opportunity while traveling through the country during summer vacations and visiting the mountains and seaside resorts to study cases that came under my notice, and make inquiries in regard to the effect of locality and change of residence.

Of these two hundred cases, about one fourth, or fifty, were

studied and reported by medical men; fifteen were themselves physicians; and thirty at least of all these cases came under my personal observation, and a number of them in various stages of the disease have been under my professional care.

These details are given because it is necessary that it should be known that the investigation was a thorough one, and that the conclusions I have reached are not hasty judgments, but the results of patient effort to find the truth. Dr. Wyman confined his operations largely, if not mainly, to New England, and hence derived conclusions in regard to the geographical limits of the disease that these more extended researches do not confirm. Still further I should say that these researches were not undertaken in the interest of any theory; the facts that bore upon the relation of the nervous system to the disease were emphasized for the reason that previously they had been overlooked by most of the writers on the subject, and would most likely be overlooked by patients and physicians in detailing their cases; the general history and symptoms of the disease had already been fully described, and I did not expect to add much to what was already known in that branch of the subject.

Before preparing my circular, certain suspicions or conjectures that atmospheric ozone or electricity might have something to do with the disease had floated vaguely before my mind, and I had accepted without questioning the statements of Dr. Wyman that the early and the later forms of hay-fever were distinct diseases; that there was no middle form in July and the first part of August; and that the disease was restricted to the quite accurately defined geographical limits as represented in his work. Those who, under the pressure of the facts presented in this treatise, abandon their previous notions of the disease, do only what I have myself been compelled to do.

In regard to the number of cases of which the statistics should be obtained, it soon became evident that one hundred, or even less, if given in full detail, according to the plan indicated in the circular, ought to be sufficient to enable one to arrive at some definite conclusions. Had the questions been fewer in number and less rigid, the difficulty in gaining statistics would have been greatly lessened, for very many who sincerely wished to aid me, and who intended to do so, gave up in despair when they found out by trial that the attempt involved so much labor and attention. This difficulty was anticipated, and in a measure prepared for, by issuing a large number of circulars, and distributing them very widely, so that out of the many who should receive them a sufficient number should be found who would give time and thought to the subject, and reply in detail. One hundred fully reported cases, or even a less number, detailed in this way, would be of more value to one desirous of obtaining an exhaustive knowledge of the disease, with a view to the discovery of some theory that would account for the phenomena, than thousands of imperfect and fragmentary reports of cases prepared at the whim of the patient or of some friend, and without any guide or system.

After the first hundred reports came in, the facts contained in them were sufficient to afford a basis for the generalizations contained in this treatise; the second hundred cases merely confirmed what the first hundred had proved, besides adding many minor details of considerable interest.

The questions contained in the circular were the result of long previous thought on the subject, and of personal observation and inquiry of many patients at the White Mountains during the season of 1873, and at their homes. Every question was asked with a definite purpose in view, which the patients in the majority of cases could not divine, and in that direction at least could not be biased in their replies.

The questions, it will be observed, relate mostly to matters of fact, concerning which the majority of intelligent people (and very few who are not intelligent ever have hay-fever) are more or less competent to judge. Questions demanding expert skill or opinions as to the matters of fact were so far as possible avoided; and any replies containing opinions lose thereby something of their value. Consistently with this principle, most of the theories of the disease that were voluntarily offered in connection with the replies to the questions have been almost entirely discarded. The object of the investigation from the first has been to obtain a very large number of every variety of facts relating to the disease, in the hope that from these facts a true theory might be constructed. It is believed that this hope has been fulfilled.

TO THOSE SUFFERING FROM HAY-FEVER.

(*Second Circular of Inquiry.*)

I am desirous of obtaining a large number of facts and statistics in regard to the so-called "hay-fever," otherwise called "hay-asthma," "rose cold," "peach cold," or "autumnal catarrh."

I am especially interested in those facts that seem to indicate the dependence of this disease on the *nervous system*.

I shall therefore regard it as a great favor if those who are personally familiar with this disease will fill out, as far as they can conveniently do so, the answers to the questions contained in this circular, and inclose, *as promptly as possible*, to my address.

Physicians who receive this circular are requested to fill out the blanks from direct inquiry of their patients, if convenient to do so. Editors of journals are requested to call attention to the fact that these researches are being made, and that circulars can be obtained on application.

Those who can not answer all the questions will confer a favor by answering a part of them.

1. Name and residence?

(If unwilling to give in full, the initials, or a simple blank, will answer.)

2. Sex?

3. Age?

4. Married or single?

5. Occupation?

6. Have any of your near or distant relatives been afflicted with any form of "hay-fever?"
7. What is the predominant temperament among your immediate relatives?—nervous, bilious, sanguine, or lymphatic?
8. Is there any disease that seems to run in your family, as consumption, catarrh, asthma, etc.?
9. What is your own predominant temperament?
10. What are the leading symptoms of the disease in your own case, from first to last?
11. At what date does the attack come on?
12. Does the attack come on every year at precisely the same day or hour, or does it vary somewhat?
13. How many years have you been a sufferer?
14. Do the attacks vary in severity in different years?
15. Are there distinct intermissions during the course of the disease when it seems to abate decidedly?
16. Do you have cough or asthma?
17. At what stage of the attack does the cough or asthma come on?
18. Are you worse by night or by day? If by day, what hours in the day?
19. Which of the following causes are most likely to excite the paroxysms? Cinders? Out-door dust? In-door dust? Roses? Other fragrant flowers? Fresh hay? Old hay? Smoke? Gases? Foul air? Pollen of corn? Bright sunlight? Bright gaslight? Camphor, hartshorn, and ether? Fruit of any kind? Dampness? Sudden chills? Night air? Perfumes of any kind? Over-exertion? Brimstone matches? Indigestion? Roman wormwood? Are there any other special causes that excite the paroxysms in your case?
20. At what date does the disease disappear?
21. Does it disappear every year at precisely the same day or hour?
22. Does the appearance of frost have any relation to the disappearance or the breaking-up of the attack?
23. Are the attacks or paroxysms during the course of the disease at all affected, for better or for worse, by mental influences?
24. Do you observe any signs of nervous depression or exhaustion, as *bad dreams*, sleeplessness, poor appetite, indigestion, or debility, or any vague nervous pain, a few days or weeks *immediately preceding* an attack?
25. After the close of an attack is your general health better or worse than usual?
26. Are you accustomed to have attacks of ordinary catarrh—"cold in the head?"
27. Do you ever have, during the winter or spring, when exposed to any of the exciting causes, as dust, etc., attacks resembling "hay-fever" in a mild form, lasting perhaps for a few minutes or hours?

28. Will the atmosphere of a close, overheated room bring on some of the symptoms temporarily in the winter?
29. Is your capacity for intellectual labor affected by the attack?
30. Have you ever, at any time* of your life, been a sufferer from sick-headache? any form of headache? dyspepsia? backache? sleeplessness? St. Vitus's dance (chorea)? epilepsy? neuralgia? palpitation of the heart? paralysis of any form? severe nervous exhaustion? fits of melancholy? any diseases of the skin, as eczema or prurigo? or any other nervous symptom?
31. Did any of your nervous diseases or symptoms leave you when the hay-fever appeared?
32. At the time when you were first attacked by the disease, were you or had you been specially overworked or overworried?
33. Are the paroxysms in any way modified by the diet? If so, what articles of food or drink are injurious?
34. Have you ever been able to derive any good or evil effect from tobacco or alcoholic liquors?
35. Are the paroxysms more or less severe during or just before menstruation?
36. Are the attacks or paroxysms modified in any way by pregnancy? or nursing? or change of life?
37. Are you better or worse on cool, dry, bracing days?
38. What is the effect of thunder-storms? of northeast storms? of dull, moist weather generally?
39. What kind of internal or local medication have you tried?
40. Has any treatment relieved you?
41. Have you ever tried the local application of a solution of quinine, as recommended by Helmholtz?
42. Have you ever tried electricity in any form, and if so, which current, and how applied?
43. Are you better in the city or in the country?
44. Where do you find the quickest and surest relief?
45. Have you ever visited a region which relieved others without yourself experiencing relief?
46. Is the relief on visiting the non-catarrhal region immediate or gradual?
47. If you leave the non-catarrhal region before the disease has disappeared, what is the effect?
48. Have you ever visited elevated regions without benefit? If so, what regions, and what elevation?
49. Have you ever tried an ocean voyage? with what effect?
50. Have you ever tried a trip to Europe, and what portion of Europe, and with what effect?
51. Have you ever tried a residence by the sea-side, and with what effect?
52. Have you ever visited the South or South America, or any warm country, at the time of the attack, and with what effect?

53. Have you ever been benefited by a residence in a large city at the time of the attack?
54. Have you ever tried a prolonged use of tonic treatment, as quinine, iron, strychnine, phosphorus, cod-liver oil, or electricity, a few weeks or months before an attack, in order to prevent it?
55. Is your case included in the statistics collected by Dr. Morrill Wyman, in his work on "Autumnal Catarrh?"

MISCELLANEOUS REMARKS:

CHAPTER III.

STATISTICS OF TWO HUNDRED CASES, BASED ON THE
CIRCULAR OF INQUIRY.I. *Name and Residence?*

(If unwilling to give in full, the initials, or a simple blank, will answer.)

The name of the correspondents was required, partly as a guarantee of the genuineness of the communication, and partly because some of them were well known, and their statements would be more interesting and carry more influence than if their names had been suppressed. In two or three cases the names and residences were given with the special request that they should not be published.

The residence of the subjects of hay-fever is of the highest importance in determining the geographical or chorographic relations of the disease—a question that, as will be seen, is interesting, both scientifically and practically. The medical and secular journals containing requests for information circulated in all inhabited portions of the country, East, West, North, and South; and the circulars were sent to nearly all the prominent resorts visited by sufferers from every section. It is fair to infer, therefore, that just conclusions of a general character in regard to the geographical relations of the malady might be drawn from the large number of cases. The relative density of population, and the employments of the people, as well as the state of ignorance, or inability or indisposition to read newspapers, or to fill out answers to elab-

orate circulars, must not be overlooked. In the Southern and extreme Western States the population is less dense than in the East, and the average intelligence is considerably lower. Furthermore, sufferers from these distant regions would be less likely to visit those sections where relief is obtained. With these qualifying facts in mind, the conclusion nevertheless seems to be necessary that hay-fever is far less frequent in the South than in the North. Physicians and patients in various parts of the South, of whom I have made special inquiries, agree that the disease in that section is infrequent. Some of the patients who remove from the North to the South seem to be benefited by so doing. The northern limit of the disease as fixed by Dr. Wyman is, however, far too arbitrary. The true statement would appear to be that the disease exists through all, or nearly all, the Southern States, but is much less frequent there than at the North, and it increases as we go north as far as the latitude of New York or Boston. Above the 44th degree of latitude the disease diminishes; and in Canada it exists, but is not common. In California also, so far as I can learn, hay-fever is not indigenous. Dr. Gibbons, editor of the *Pacific Medical and Surgical Journal*, to whom I wrote for information, was good enough to call the attention of the Medical Society of San Francisco to the query whether the disease existed in that state; and it was found that of the members present none had seen a case.

West of the Mississippi, north or south, the disease is very rare; and the elevated regions of Colorado are curative. Possibly the want of vegetation in the immense districts of the extreme West may account for the absence of the disease; and the sparsity of population is also to be considered.

The residences of my correspondents were as follows :

Maine.....	2	Wisconsin.....	3
New Hampshire.....	3	Minnesota.....	1
Vermont.....	3	Missouri.....	2
Massachusetts.....	21	Colorado.....	1
Rhode Island.....	2	Maryland.....	3
Connecticut.....	8	Virginia.....	2
New York.....	53	Kentucky.....	1
New Jersey.....	4	Georgia.....	1
Pennsylvania.....	14	Mississippi.....	2
Illinois.....	15	Alabama.....	1
Indiana.....	4	Florida.....	1
Ohio.....	16	Canada.....	1
Michigan.....	4		

In estimating the value of the above figures, it is needful to consider not only the relative density of population, but also the fact that in New York, and especially in the cities of New York and Brooklyn, the cases of hay-fever were more easily accessible to me than those in distant parts of the country.

The important facts established may be thus recapitulated :

1. Hay-fever is probably found all over the country, from Maine to the Rocky Mountains, and in Canada.

If certain states give no representatives in this list, it is not right to infer that no cases are found in those states. If the two hundred cases were averaged, there would be but five or six to each state. Certain states where the disease abounds, as Connecticut and Indiana, happen to have sent me but a very few replies.

2. The disease, though it exists all through the South, is less frequent there, and apparently increases in frequency as we go North. This conclusion is derived not only from these statistics, but from special replies to this particular inquiry.

3. There is no proof that any considerable district of the country, aside from the mountains and the coldest regions of the North and Northwest, is entirely exempt. The elevated plateau of Western New York, represented by Dr.

Wyman on one of his maps as free from hay-fever, is evidently filled with it. The city of Elmira is in that supposed exempt region, and I have *nine* cases from that city alone, nearly all of them sent by one physician—Dr. W. C. Wey. Catarrhal and non-catarrhal regions do not appear to be distinctly defined by any degrees of latitude or longitude.

2. Sex?

In regard to the sex of my correspondents, this consideration should be noted, that men might perhaps be more likely to reply to circulars of this kind than women. It is noteworthy that, both in the statistics of Dr. Wyman and in mine, the males are much in excess. Of the enrolled members of the United States Hay-Fever Association (1874), 20 are males, 24 females. This association has its headquarters in Bethlehem, White Mountains, and its membership is recruited largely, though not entirely, from visitors in those regions during the season of the later form of the disease, in August and September. The query whether a larger proportion of men or women would be likely to leave home during this season may be raised, and it is certainly fair to conclude that at that season men find it quite difficult to absent themselves from business.

Replies :

Males..... 133

Females..... 67

Of 154 cases noted by Dr. Phoebus, 104 were males and 50 females.

Of 79 cases reported by Dr. Wyman, 54 were males and 25 females.

Of the 433 cases reported by Phoebus, Wyman, and myself, 142, or about one third, were females.

It is probably fair to conclude from these statistics that the disease is less frequent among women than among men.

To many of the very large number of exciting causes of the disease—as out-door dust, sunlight, the pollen of grass, corn, rag-weed, and so forth—men are much more exposed than women; and this fact may perhaps be the explanation of their greater liability to the disease.

3. *Age?*

Replies :

Under 30.....	34		Between 40 and 50....	65
Between 30 and 40....	56		Over 50.....	33

4. *Married?*

Replies :

Married.....	138		Single	51
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5. *Occupation?*

The two most noteworthy facts in regard to the occupations of my correspondents are that most of the males are professional, literary, and business men, while the number of farmers, the class above all others exposed to the emanations of hay and grass, and vegetation generally, is very limited. In this feature these statistics strikingly agree with those of other writers on the subject in Europe and America. It is true that farmers and laborers on farms would be less likely to reply to circulars of this kind than the classes that are more inclined to read and write; but this statistical fact is confirmed by general and special observation. I have made many inquiries of physicians in various rural districts, and very rarely have succeeded in finding a victim among those who till the soil. Among the muscle-working classes of any kind, mechanics, artisans, etc., whether of American or foreign birth, whether living in the city or the country, the disease is not common; and when it appears at all in the lower walks of life, it is more likely to attack females.

Those who labor in any processes that are attended with irritating dust do not seem to be more liable to the disorder than others in the same station in life.

Hay-fever, therefore, does not appear to be a malady belonging to any special occupation or trade; it is rather a disease of the brain-working than of the muscle-working classes — of lawyers, clergymen, teachers, professors, physicians, merchants, and literary men, or their families, than of mechanics or laborers.

Replies :

Merchants (Agents, Bankers, Manufacturers, Clerks, etc.)...	58
Clergymen.....	16
Physicians.....	15
Lawyers.....	7
Teachers.....	7
Authors and Editors.....	3
Dentists.....	2
Librarian.....	1
Civil Engineer.....	1
Phonographers.....	2
Artisans (Printers, Mechanics, etc.).....	22
Farmers.....	7
Housekeepers.....	24

6. *Have any of your near or distant relatives been afflicted with any form of hay-fever?*

The hereditary character of hay-fever, as established by the answers to this query, is one of the most suggestive and important features of the disorder, and it need not be said is an unanswerable fact against the popular hypothesis of parasitic or vegetable irritation. There is no disease the hereditary character of which is more clearly established than that of hay-fever; cancer and consumption surely will not give a more striking family history. The nervous diathesis, or the tendency to different forms of diseases of the nervous system, such as neuralgia, epilepsy, chorea, insanity, and paralysis, runs in families, as is now well known; but these varied forms

of nervous disease act, so to speak, interchangeably; rarely does any one nervous symptom affect very many members of a family.

Replies :

No..... 124 | Yes..... 66

Special Replies :

"Great-grandfather." "A nephew and a niece; one on each side of the family." "Mother had rose cold." "Two daughters." "Uncle and four of his children." "Mother and sister." "Father and sister." "Four children and a brother."

Among two sets of near relatives there were twelve cases of hay-fever.

On this subject of inheritance, Dr. Wyman remarks as follows :

"Family predisposition. In my own family, among the sufferers are my father, my two brothers, my sister, and myself; of three other children, only one arrived at maturity, a brother, who was exempt; my son is also a sufferer, and my daughter has June cold.

"Chief Justice Shaw was the only child of several who arrived at maturity; his mother had autumnal catarrh; of his four children, one son is a sufferer; a son and a daughter have June or summer cold. The son who has autumnal catarrh has a daughter who is now twenty-two, and has had autumnal catarrh six or eight years. Another son, who has arrived at maturity, has neither summer nor autumnal catarrh.

"Rev. Henry Ward Beecher has a sister, and his brother a son, who are sufferers.

"The following are the family relations of sufferers :

"In one case, a sufferer had a great-uncle who was affected.

"In one case, a maternal aunt.

"In one case, both parents were affected.

"In four cases, the mother.

"In one case, one parent being a sufferer; three sons and a daughter, and a grandson; one granddaughter with June cold.

"In one case, a daughter.

"In one case, one son and a granddaughter; one son and one daughter with June cold.

"In two cases, each sufferer had a brother affected; the parents being free.

"In one case, a sister and brother's son.

"In one case, a brother's son.

"In one case, a niece.

"In a family in Plymouth, Mass., three sisters, and in another two sisters, are sufferers.

"Of seventy-seven cases recorded in our table, in fifteen (one fifth) more than one member of the same family is also affected—a much larger proportion than exists in the community generally."

7. *What is the predominant temperament among your immediate relatives?—nervous, bilious, sanguine, or lymphatic?*

The general subject of temperament is in a general way tolerably well understood among the people, and the errors in the replies to this and the ninth query are probably not numerous. In those cases where I had opportunity to see the cases after the report was prepared there was no occasion to change the statements made under this head.

Replies :

Nervous.....	62	Bilio-sanguine.....	6
Nervo-sanguine.....	28	Lymphatic.....	3
Bilious.....	27	Bilio-lymphatic.....	2
Nervo-bilious.....	27	Sanguino-bilious.....	2
Sanguine.....	14		

Special Replies :

"On father's side nervous; on mother's lymphatic." "On father's side sanguino-bilious; on mother's nervous." "Sanguino-lymphatic."

8. *Is there any disease that seems to run in your family, as consumption, catarrh, asthma, etc.?*

On this subject there are chances for error or misstatement. Many persons unintentionally deceive themselves in regard to family diseases; they close their eyes to evidences, and attain a fixed state of disbelief in the fact that they inherit a tendency to any grave disease. The negative statements of patients in regard to this matter are always to be received with caution. With many of the families of the hay-fever subjects I am sufficiently acquainted to be able to answer this question without special inquiry.

Replies :

Asthma.....	11	Rheumatism.....	1
Catarrh.....	11	No disease.....	58
Consumption.....	15		

There is certainly no evidence in favor of the theory that consumption or ordinary catarrh leads to hay-fever.

9. *What is your own predominant temperament ?*

Replies :

Nervous.....	67	Sanguino-lymphatic....	1
Nervo-sanguine.....	27	Sanguino-bilious.....	5
Bilious.....	29	Nervo-lymphatic.....	3
Nervo-bilious.....	23	Bilio-lymphatic.....	1
Sanguine.....	18	Lymphatic.....	2

It will be observed that these replies correspond to those of question 7 ; illustrating, what is well known, that temperaments run in families.

10. *What are the leading symptoms of the disease in your own case, from first to last ?*

The symptoms of this affection have been so often and so thoroughly detailed that it could hardly be expected that any thing new on this branch of the subject could be obtained. Certain special manifestations or types were, however, noted, some of which had previously escaped observation. These will be spoken of in the chapter on symptoms, and under the illustrative cases. The relative frequency and severity of some of the symptoms have, however, been noted. The one important fact brought out by this inquiry is that the symptoms of the early, middle, and later forms of hay-fever, whenever and wherever occurring, are substantially the same. This subject will be subsequently discussed in detail.

From among the many detailed remarks under this head I select the following. They are of interest, not as giving a full picture of the symptoms, which is reserved for a subsequent

chapter, but as illustrations of unusual or striking phases of the disease.

Special Replies :

"Asthma ; itching of the skin." "Sometimes sneezing twenty times in rapid succession, followed by great exhaustion." "Cough continuing after other symptoms are well." "Excessive sneezing ; excessive lassitude." "First, tickling sensation in larynx and pharynx ; then rawness of laryngeal and pharyngeal mucous membrane ; within twenty-four or thirty-six hours extension of inflammation to nose." "First sneezing, and then nose-blowing for from one to four hours and longer, followed by shortness of breath. Do not fairly get over one attack before I have another." "A few days before attack feel as though I had taken a slight cold." "A constant desire to clear the throat." "My greatest trouble is coughing violently." "Burning discharge for two days." "Prolonged suffocation." "Heavy, stupid condition of the mental faculties." "Commences with sneezing, eyes inflamed, itching of eyes and nose ; goes to lungs, and then spasmodic asthma appears, which being relieved I revive considerably, *then back to first symptoms* ; this will occur three or four times during the season, say of four weeks, more or less." "Complete prostration, so that my life is sometimes despaired of." "Nervous fever." "Swelling of upper lip ; breaking out of boils."

11. *At what date does the attack come on ?*

The replies to this are of great significance. First of all it is shown that there is a middle form of hay-fever, beginning in July, and ending in August, or later. It has not been before known that such a disease existed. I find no notice of it in any of the writers on hay-fever. Again, it is shown that in this country there is no time between May 1st and October 1st when the attacks of hay-fever may not begin. The times of beginning are, however, sufficiently definite to make the division into the *early*, *middle*, and *later* forms of the disease allowable, as well as most convenient for the purposes of description. These general divisions are not, however, rigidly or mathematically separated. The early form, or the so-called "Rose Cold," or "June Cold," may begin in May as well as June, and in any part of either month, though preferably in the first half of June. The middle form may begin any time in July. The later form, or Autumnal Ca-

tarrh, may begin any time in August or September; but in the majority of cases the first symptoms appear in the latter half of August. The relative frequency of the later form as compared with the early and middle forms is noteworthy.

Replies:

From May 1 to 10.....	2	From July 20 to 31.....	7
" " 10 " 20 } ...	6	" Aug. 1 " 10.....	7
" " 20 " 31 } ...	6	" " 10 " 20.....	81
" June 1 " 10.....	11	" " 20 " 31.....	54
" " 10 " 20 } ...	8	" Sept. 1 " 10.....	7
" " 20 " 30 } ...	8	" " 10 " 20.....	1
" July 1 " 10.....	6	" " 20 " 30.....	2
" " 10 " 20.....	6		

Special Replies:

"From August to January." "August 10 to August 15." "This year decided symptoms last of July." "From June to September." "From May 1 to May 30." "July." "June." "In May." "Don't know." "About Midsummer." "When grass is in bloom." "Middle of August; and also have 'rose cold' during flower-time."

12. *Does the attack come on every year at precisely the same day or hour, or does it vary somewhat?*

The popular belief that hay-fever comes usually at a definite hour or day each year seems not to be fully sustained by the extended inquiry. The number of those who are sure that the disease always comes on at a definite date is very small. In the majority of cases the replies to questions 11 and 12 are modified by the terms "about" or "between."

Replies:

Varies..... 145 | Does not vary, or but little... 36

Special Replies:

"About same day." "Wake in morning with it." "Precisely the same day and hour of morning." "Same day and hour." "Same hour; 8 A.M." "Precisely the same day."

13. *How long have you been a sufferer?*

From the replies to this inquiry we are enabled to ascertain the age at the time of the first attack. This is obtained by subtracting from the age as given above.

The ages at the time of the first attack are as follows :

From infancy or childhood.....	20
“ between ages of 1 and 5 years.....	3
“ “ “ “ 5 “ 10 “	11
“ “ “ “ 10 “ 20 “	39
“ “ “ “ 20 “ 30 “	46
“ “ “ “ 30 “ 40 “	46
“ “ “ “ 40 “ upward.....	26

Highest ages at which the disease appeared are : at 61, one; at 57, one; at 56, one; at 55, one; at 54, one; at 53, one; at 50, two; at 49, two; at 48, three; at 47, one.

The average age at which the first attack comes on is about *twenty-five years*.

Dr. Wyman gives the following statistics in regard to age at the time of the first attack :

Age when First Attacked.	Males.	Females.	Total.
Under 10.....	11	0	11
10 to 20.....	11	4	15
20 “ 30.....	12	13	25
30 “ 40.....	4	4	8
40 “ 50.....	8	3	11
Above 50.....	1	1	2

Blackley says that there is no instance where the disease has shown itself for the first time after the age of forty.

Of 56 cases analyzed by Dr. Phoebus, 11 had their first attack when between fifteen and twenty years of age, and the majority of cases came on between the ages of five and twenty-five.

14. *Do the attacks vary in severity different years?*

This question is based on the assumption that the patient does not visit an exempt region or use any important general or local treatment.

Replies :

Vary in severity in different years	156
Do not vary in " "	37

Special Replies :

"Seem to grow worse." "Formerly varied; but of late years have always been severe."

15. *Are there distinct intermissions during the course of the disease when it seems to abate decidedly?*

Replies :

There are distinct intermissions.....	105
There are no " "	78

Special Replies :

"Sometimes I feel free for a week or two, after which it will return."

16. *Do you have cough or asthma?*

The answers to this query show that the symptoms of cough or asthma are not peculiar to any one form of hay-fever, but are common to all forms, whether occurring in the spring, summer, or fall. Only a minority—less than a quarter—of the cases escape without either cough or asthma.

Replies :

Cough	30	Both cough and asthma ...	102
Asthma	19	Neither	44

Special Replies :

"Not habitually." "Sometimes asthma." "Asthma; and, if it continues long, cough."

17. *At what stage of the attack does the cough or asthma come on?*

Replies :

Early stage.....	52	Later stage.....	50
Middle stage.....	37		

Special Replies :

"Any time I take cold." "Asthma in a week; cough later." "Asthma at first, and cough within a few days." "All stages." "Cough early; asthma late." "Asthma early, and cough later."

18. *Are you worse by night or by day? If by day, what hours in the day?*

Replies :

By night..... 117 | By day..... 56

Special Replies :

"Rather worse in afternoon and early part of night." "Night from 12 until morning." "Night from 6 to 12." "Worse from 3 A.M. until noon." "If I go out in the morning I suffer much." "At night and until noon." "Sometimes one; sometimes the other." "Night as to asthma; sneezing worse by day." "No difference." "Both." "By day; 10 A.M. and 5 P.M."

19. *Which of the following causes are most likely to excite the paroxysms? Cinders? Out-door dust? In-door dust? Roses? Other fragrant flowers? Fresh hay? Old hay? Smoke? Gases? Foul air? Pollen of corn? Bright sunlight? Bright gaslight? Camphor, hartshorn, and ether? Fruit of any kind? Dampness? Sudden chills? Night air? Perfumes of any kind? Over-exertion? Brimstone matches? Indigestion? Roman wormwood? "Sneeze-weed?" Are there any other special causes that excite the paroxysms in your case?*

This question as here given was prepared after the first edition of the circular of inquiry; and the names of the alleged exciting causes were taken from the replies to that circular. "Sneeze-weed" is probably the same as Roman wormwood, or "rag-weed," which is an exciting cause of hay-fever in a far greater proportion of cases than would appear from the replies found below. In regard to the exciting causes, subjects of hay-fever, whether medically educated or not, would usually be competent to decide, for the reason that the effects of these agents are shown at once, oftentimes

instantaneously. There is no period of incubation apparently, and no delay giving chance for other influences to act, and thus complicate the matter and deceive the subject, as with many other diseases. Neither is there much chance of error from mind acting on body, for in the first instance the attack is usually an utter surprise to the victim; and in subsequent attacks the paroxysms frequently appear before they are aware of the presence of the exciting cause.

The three facts of most significance that are brought out by this inquiry are :

1. That the number of special exciting causes of hay-fever is very large. Over thirty are here specified.

2. Hay, either fresh or dried, only comes about the middle on the list, while dust leads off by a large plurality. The disease might be more appropriately termed dust-fever, or sun-fever, than hay-fever.

3. In few, if any, cases are the paroxysms excited by only one agent. Usually two, three, and more of the above causes are cited, and some declare that all on this list are obnoxious. This fact shows the inconsistency of naming the disease after any one of these excitants.

It is probable that the list of exciting influences or agents is not yet exhausted. Further researches in other countries, and very likely in this country, would bring to light some excitants of the paroxysms not here mentioned.

Replies :

Dust (in-door and out-door) ..	104	Fruit	22
Sunlight	48	Peaches	4
Gaslight	36	Pears	1
Heat	20	Melons	1
Over-exertion	38	Tomatoes	1
Foul air	29	Smoke	27
Indigestion	29	Dampness	29
Hay (dried or fresh)	38	Chills	25
Flowers	31	Anxiety	16
Roses	5	Cinders	23

Brimstone matches.....	23	Roman wormwood (rag-weed)..	10
Gas.....	23	Pollen of corn.....	5
Perfumes.....	13	Camphor.....	5
Drafts of air.....	16	Fog.....	2
Cold winds.....	19	Feathers.....	1

20. At what date does the disease disappear?

It appears that the date of the disappearance of the disease is even more indefinite than its appearance. In no case does it always leave at a fixed hour or day, but always—or almost always—is dependent more or less on atmospheric conditions, the lateness of the season, or the early coming of cold and frost. The early form of the disease disappears some time in July; the middle form in August or September; the later form usually in September or October, but may extend into November or December, and the symptoms of cough and asthma may persist until spring. I have no record of any case in which the symptoms ever persisted through the year. So far as I can learn, those cases that suffer so many months do not carry the nasal symptoms with them, but have only the asthma and cough, which act as sequelæ to the early stages of the malady—possibly from a chronic bronchitis.

Replies:

Early in October.....	42	Early in December.....	1
With frost or cold weather.	35	Middle of December.....	1
Latter part of September...	26	January, or early winter....	2
Middle of September.....	13	March 1.....	1
Middle of October.....	14	Middle of July.....	6
Early in November.....	9	Latter part of July.....	5
Middle of November.....	4	Early in August.....	5
Latter part of October.....	3	Middle of August.....	2
Early in September.....	2	Latter part of August.....	1

Special Replies:

“From the last of September to the 1st of December.” “Three weeks after beginning.” “Can not state definitely.” “About November 1. Disease at its height about October 1.” “Begins to break up October 1,

and gradually wears away as frost becomes heavier." "It disappears so gradually that it is hard to fix the time to a day." "From September 15 to December 25." "Now about December 15; formerly about September 10. or 15." "After several sharp frosts." "March 1." "Between July and September." Four persons reply—"After a career of six weeks." "End of flower season." "Any time from middle of October to December." "During fall." "Lasts eight weeks." "Late in winter." "Early in winter." "About January 1."

21. *Does it disappear every year at precisely the same day or hour?*

Replies :

No..... 138 | Yes..... 23

Special Replies :

"Varies in day; but at the same hour, 8 A.M." "Does not vary much," is a reply made by a number of cases. "Just six weeks from time of beginning, to a day, by actual count."

The average duration of the disease appears to be not far from six weeks. It rarely terminates in less than two weeks, and sometimes extends through several months.

22. *Does the appearance of frost have any relation to the disappearance or the breaking up of the attack?*

Replies :

Yes..... 102 | No..... 52

Special Replies :

"The gradual approach of cold weather helps me." "I always feel relieved when it begins to freeze."

The appearance of frost marks the coming on of cold weather, and also destroys the vegetation; thus the two exciting causes, heat and vegetation, are instantly removed with frost.

23. *Are the attacks or paroxysms, during the course of the disease, at all affected, for better or for worse, by mental influences?*

Replies :

Affected ; but do not specify just how.....	26
For the better, by excitement, etc.....	13
For the worse, by worry, etc.....	21
Unaffected.....	87

Special Replies :

"Any thing that depresses me makes me worse." "Not by mental, but by physical." "A sudden mental diversion has completely arrested a violent attack." "Active labor relieves." "Depression unfavorable, and cheerfulness favorable."

24. *Do you observe any signs of nervous depression or exhaustion ; as bad dreams, sleeplessness, poor appetite, indigestion, or debility, or any vague nervous pain, a few days or weeks IMMEDIATELY PRECEDING an attack ?*

This question was deemed quite important, as bearing on the constitutional, if not on the nervous character of the disease. It has always seemed to me that if it could be shown that the pronounced and visible symptoms were preceded in any considerable number of cases by evidences of nervous depression, there would be a strong argument in favor of the theory that, whatever the exciting causes might be, the disease was primarily constitutional, and probably nervous. Henry Ward Beecher, in a letter to Dr. Wyman, giving a detailed account of his personal experience with hay-fever, speaks particularly of these premonitory symptoms, and up to the time of the preparation of this circular I had seen no report of any other case in which symptoms of this character had been suggested. That Mr. Beecher should have been one of the first in this country to observe and distinctively note this preliminary stage of nervous depression is remarkable, all the more because he is popularly supposed to be not only a man of unusual strength, but unusually free from nervousness. Very often, when the suggestion that the nervous sys-

tem had much to do with hay-fever has been made by me in correspondence or in conversation, I have been reminded that Mr. Beecher, a man without nerves, was a victim. More remarkable still, in a speech at the last meeting of the United States Hay-Fever Association, Mr. Beecher formally stated his belief in the theory that the disease originated in a depressed state of the nervous system. The opinions of this one man on the general subject are worth but little, and are noted here as an incident rather than an argument. His observations of what appeared to be the facts of his own case are, however, worthy of consideration, especially now that his statements have been confirmed by sufferers from the disorder, some of whom have no theory of the disease, while others reject the nerve theory absolutely. It would seem that the stage of depression is more likely to precede the later than the early form of the disease, the explanation being that the later form comes on in the midst of "dog days," a season when in this country nearly all susceptible persons are more or less "run down."

Replies :

Yes..... 54 | No..... 40

Special Replies :

"Headache and nervous depression." "Lassitude, depression, paleness, and headache." "Perhaps a little languor." "Poor appetite and debility." "Bad dreams." "General prostration and loss of appetite." "Slight malaise two or three days preceding an attack." "Not that I am aware of."

That over one fourth of the cases replied affirmatively to the above query is highly suggestive. Of the large number that gave no reply, some might not unlikely be in doubt, and found it easier to pass the query than to answer it.*

* The latter half of the queries are answered with less thoroughness than the first half, probably on account of the fatigue of the correspondents.

25. *After the close of an attack, is your general health better or worse than usual?*

Replies :

Worse.....	58		No change	58
Better	42			

The above replies make it evident that an attack of hay-fever does not leave the system diseased or exhausted to the extent that the violence of the local and general symptoms would lead us to expect.

26. *Are you accustomed to have attacks of ordinary catarrh—“cold in the head?”*

The replies to this interrogatory make it clear that there is no necessary relation between common nasal or post-nasal catarrh and hay-fever; both those who are and those who are not subject to cold in the head, acute or chronic, are liable to the disease, and in some cases chronic catarrh exists all the year.

Replies :

Yes.....	67		No.....	112
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Special Replies :

“Yes, very frequently.” “More exempt than most people.” “No more than usual.” “Very seldom.”

27. *Do you ever have, during the winter or spring, when exposed to any of the exciting causes, as dust, etc., attacks resembling “hay-fever” in a mild form, lasting perhaps for a few minutes or hours?*

A point strongly in favor of the parasitic or vegetable theory is the peculiar periodicity of the symptoms. The almost mathematical certainty of the coming on of the disorder in some cases on a fixed day or hour, and the subsidence of the symptoms at definite times, suggests to almost any one

the possibility that some parasitic or vegetable emanation appearing only during the season of the disease might be the cause.

If it could be shown that some at least of the symptoms were felt at other than these so-called catarrhal seasons; if sufficient evidence of the occurrence of certain phases of the malady in the winter and spring could be obtained, the parasitic and vegetable theories would be seriously shaken.

This evidence is here given. The hay-fever symptoms that are in the winter excited by exposure to the dust of hay or of the house, or to animal emanations, are usually, if not always, of a transient character, lasting but a few minutes or hours; but for this brief time they are characteristic of the disease, and they do not appear in other persons.

A medical man with whom I have conversed on the subject tells me that at any season it is impossible for him to curry a horse without bringing on at once the usual symptoms of the disease. Others can not at any time go into a barn without suffering the penalty of sneezing and distress for several moments or longer. Ipecac produces on some the same effect.

Replies :

Yes 101 | No 77

Special Replies :

"Lots of 'em; but in a very mild form." "For a few hours." "For a short time only." "Dust of hay will cause it." "Yes, in the spring." "Caused by straw dust." "Slight attacks very early in the season." "Flowers cause it." "Dust of sweeping." "For a few minutes, perhaps."

28. Will the atmosphere of a close, overheated room bring on some of the symptoms temporarily in the winter?

It was expected that the answers to this query might possibly shed some light on the theory of the relation of tem-

perature to hay-fever. It has been observed by many sufferers from ordinary nasal catarrh that the symptoms are sometimes made worse by confinement in close rooms; and there are those who believe with Benjamin Franklin that colds may be caught by exposure in rooms overheated and badly ventilated. It is noteworthy that hay-fever symptoms, when brought on in this way during the winter season, last but a short time—a few moments or hours at most.

During the season of the attack, as many sufferers have observed, the symptoms are worse during hot days and when warm winds blow, and conversely are better during cool days and the prevalence of cool winds.

Replies :

Yes 50 | No 70

Special Replies :

“Quite often.” “Slightly.” “In company must sometimes go out and have a sneezing-spell.”

The proportion of those who make an affirmative reply to the above question, taken in connection with other facts of the disease, is sufficient to show that simple heat, without the co-operation of any other external irritant, may, when acting on a predisposed person, excite the symptoms. It is true, the symptoms thus excited during the winter only endure for a short time; but this also is true when the same symptoms are excited in the winter by dust, or hay, or flowers, or other irritants.

29. *Is your capacity for intellectual labor affected by the attack?*

Severe pain and distress accompanying disease of any kind do not of necessity impair the activity of the intellect; on the contrary, they may act as stimuli. We are told of one of the great English orators that before making an important

speech he would sometimes put a blister on his arm. But there are some disturbances of the system unaccompanied by severe pain which yet unfit one for mental or physical labor; seasickness and some forms of sick-headache are illustrations; and, from the number of affirmative answers to this question, it may be believed that hay-fever falls in the same category.

Replies :

Yes..... 105 | No..... 54

Special Replies :

“Not perceptibly affected except by the debilitating effects.” “Very much for weeks.”

30. *Have you ever, at any time of your life, been a sufferer from sick-headache? any form of headache? dyspepsia? backache? sleeplessness? St. Vitus's dance (chorea)? epilepsy? neuralgia? palpitation of the heart? paralysis of any form? severe nervous exhaustion? fits of melancholy? any diseases of the skin—as eczema or prurigo? or any other nervous symptom?*

The above terms simply express a number of the symptoms of the nervous diathesis as they are popularly known. Headaches of nearly all kinds, backaches, neuralgia, sleeplessness, and, as it is now beginning to be recognized, certain skin diseases, as prurigo, and, in the opinion of some, certain varieties of eczema, are largely nervous affections; that is, the nervous element predominates in them. On any theory of the disease it would be interesting to ascertain, if possible, the ruling diathesis among the victims, and what diseases, if any, prevail among them. We have seen already, in the replies to question 9, that the majority of sufferers from this malady in both sexes are of the nervous, or nervo-bilious temperament, and that these temperaments also prevail in the families to which they belong. The nervous diathesis is a

term I am accustomed to apply to a constitutional tendency to the various functional diseases of the nervous system.

The replies to this question are very suggestive, as showing, on the one hand, the great frequency of headache, and especially sick-headache; and, secondly, on the other hand, the comparative scarcity of graver diseases of the nervous system—those that have a coarser pathology, such as paralysis and epilepsy.

In reference to the frequency of sick-headache, it should be considered that among all the intellectual classes of both sexes in this country this symptom is a very common one; and yet it can scarcely be believed that the proportion of those who suffer from this most distressing malady constitutes one quarter of our population. Surely no one would claim that of one hundred persons whom we may chance to meet, one out of every four are victims of sick-headache at any season of their lives.

Replies :

Sick-headache.....	56	Nervous exhaustion.....	21
Headache.....	34	Chorea.....	12
Backache.....	28	Paralysis.....	8
Neuralgia.....	35	Melancholy.....	11
Dyspepsia.....	21	Eczema and prurigo.....	5
Sleeplessness.....	22	Rheumatism.....	1
Palpitation.....	23	None of these symptoms.	48

Special Replies :

“Sick-headache; but the first attack was two years after hay-fever began.” “Headache occasionally.”

A mere glance at the above list shows a remarkable prevalence of various nervous symptoms among the sufferers from hay-fever. These are symptoms concerning which any person is competent to judge, the only source of error being that hypochondriacs sometimes imagine pains which they do not feel. All of the symptoms are abundant in the United

States, particularly among the female portion of the population; but to suppose that they prevail among all classes, even of the brain-working order, in the proportion here represented, is to assume that our race is badly degenerated.

31. *Did any of your nervous diseases or symptoms leave you when the hay-fever appeared?*

The object of this inquiry was to find out whether hay-fever acted vicariously to other nervous symptoms, either taking their place or in any way modifying them. That such a correlation exists in other nervous diseases, and, indeed, in diseases not distinctively nervous, there is no question. The popular notions on this subject have a certain basis of fact, although they are not entirely true. Thus when the shingles break out, asthma may disappear; the healing of an eczema sometimes is followed, when the constitution is not treated at the same time, by grave troubles of the brain; neuralgia of the arm may alternate with eruptions on that part, and so forth.

Replies :

No 62 | Yes 32

Special Replies :

"No; but became worse." "Sick-headache left me when hay-fever came on." "My dyspepsia not so bad during an attack." "Have less headache." "Returns at close of attack." "Sick-headache less frequently." "Headache and dyspepsia less." "Have bad sick-headache during an attack of fever."

There is no apparent constancy in the disappearance or modification of former nervous symptoms on the appearance of hay-fever; but in about one case out of six the reply is affirmative. In other cases, and apparently those cases that are exhausted by the attacks, the previous symptoms of debility are aggravated.

32. *At the time when you were first attacked by the disease, were you or had you been specially overworked or overworried?*

This is a subject in regard to which the statements of sufferers must be received with some caution, and it is noticeable that quite a large number have refrained from replying, or have given doubtful answers. The sources of error quickly suggest themselves. Many people are overworried, if not overworked, all their lives; the majority were not aware that they had hay-fever until the second or third year, and then it would be perhaps too late to judge in regard to the special influence of mental states. Again, the exciting causes of the disease are, as is now known, very numerous, and simple coincidences might easily deceive the best observer.

Replies:

No..... 94 | Yes..... 26

Special Replies:

"Overheated." "I was pulling weeds in my garden." "Debilitated after confinement." "Bereavement."

Under illustrative cases it will be shown that quite a number date the beginning of their first attack to some special exposure to some vegetable or other irritant.

33. *Are the paroxysms in any way modified by the diet? If so, what articles of food or drink are injurious?*

This and the following inquiry are easier made than answered. We all admit the difficulty of deciding in any disease or state of the system, even in nervous dyspepsia, in which the good or evil effects of diet are so speedily felt, just what is and what is not best for us. Beyond the general fact that easily digested food is best, nothing is ascertained by these inquiries.

Replies:

No..... 95 | Yes..... 42

Hearty eating injurious.....	8		Fruits injurious.....	8
Light food beneficial.....	6		Milk injurious.....	4

Special Replies :

"Paroxysms severe after meals." "Generous diet best." "Hot lemonade a great relief." "Night meals injurious." "Temporarily relieved by eating." "Salt food not good." "Require more nourishing food than usual, and feel better after eating." "Can't eat fruit or vegetables ; can't drink coffee, lemonade, or soda-water." "I have a great craving for fruit."

34. *Have you ever been able to derive any good or evil effect from tobacco or alcoholic liquors ?*

In the replies to the above inquiry the only point that seems to be made is that alcoholic liquors sometimes are of real efficacy for at least the temporary relief of the symptoms.

Replies :

Good effect (from one or both). 45 | Bad effect (from one or both). 80

Special Replies :

"Smoking to nausea helps a little." "Only evil, and that continually." "Whisky sometimes relieves flatulency." "Smoking good cigars relieves ; alcohol injures." "Smoking relieves the asthma ; sometimes whisky (hot) relieves it."

Take the above affirmative replies in connection with the general facts of observation and experience, and we have a strong case in favor of the beneficial action of alcoholic liquors in some individuals. I was somewhat surprised at this, for I had supposed that alcohol rarely, if ever, was of temporary value in this disorder.

35. *Are the paroxysms more or less severe during or just before menstruation ?*

The object of this interrogatory, and of the following also, is the same as that of No. 31—namely, to trace the correlation between states of the system in which the nervous system

is specially involved and the symptoms of this disease. The replies to these queries are too few to be of much value.

Replies :

No difference.....	10		Less severe.....	1
More severe.....	10			

Special Replies :

"More severe the week succeeding."

36. *Are the attacks or paroxysms modified in any way by pregnancy? or nursing? or change of life?*

Replies :

No difference.....	10		Favorably.....	2
Unfavorably.....	7			

37. *Are you better or worse on cool, dry, bracing days?*

The striking fact in the answers to this question is that so large a majority agree in the statement that cool, bracing days make them better. This fact is of import as bearing on the question of the relation of heat to the disease. It is to be noted that the simple element of coolness relieves almost always, even when there is no other apparent change in atmospheric conditions—no change of residence, and no removal from the neighborhood of vegetable irritants.

Likewise in traveling it is found universally that wherever a cool temperature is found—at sea, on the mountains, in high latitudes—there also is found relief.

Replies :

Better.....	126		No difference.....	10
Worse.....	27			

Special Replies :

"Northwest wind actually poisons me; a south wind is delightful."
 "Better, if not too windy." "Breezy weather the most trying." "The greater the breeze, the more I sneeze." "Worse in dry, hot weather."

In those cases where a cold wind aggravates the disease it is probably through the irritating effect of the wind more than through the simple lowering of the temperature.

38. *What is the effect of thunder-storms ? of northeast storms ? of dull, moist weather generally ?*

The value of this query is impaired by its complication. Before and during thunder-storms the atmospheric conditions are greatly changed, and after a thunder-storm there is usually coolness. The statistical answers to this query, therefore, can not be accurately interpreted. The special replies are, so far as they go, of value.

Replies :

Bad effect.....	104		No difference.....	21
Good effect.....	22			

Special Replies :

"Northeast storms make me worse ; damp weather makes me better." "Always worse ; terrible." "If it is cool, I feel better, wet or dry." "Relief in moist weather." "Moist weather bad." "Hot weather aggravates." "Relief after storms generally." "Moist weather aggravates ; storms do not affect."

39. *What kind of internal or local medication have you tried ?*

The replies to this question will be included in the chapter on Prevention and Treatment.

40. *Has any treatment relieved you ?*

In estimating the value of any medical treatment, there are always three sources of error which must be considered by those who wish the exact truth.

First—Mind acting on body. Faith in a remedy is frequently better than the remedy itself. A new medicine, or a novel system of treatment which has been highly vaunted, will sometimes relieve at first, because those who use it are

led to expect great things of it. As the novelty wears away the remedy loses its power. On the same principle a patented or secret preparation, shrouded in mystery, will cure, when the same preparation, with its contents divulged, is of no service. Conversely, want of confidence in a remedy—a frequent trouble with hay-fever sufferers—interferes oftentimes quite seriously with whatever real power for good the remedy may have. The belief that nothing can be done for hay-fever is so widely prevalent that medicines are usually taken with a half-heart, and we need not wonder that sometimes they do no good.

Secondly—Coincidences. The course of hay-fever is liable to intermissions, and varies greatly with atmospheric and other influences; and these natural changes might be attributed to the medicine that is used.

Thirdly—Want of thoroughness and persistence in the use of remedies. Most hay-fever patients have treated themselves; many have been compelled to do so, and others have no confidence in any thing that physicians can do for them. The books until lately have contained but little information on the subject, and the majority of medical men of all schools have devoted but slight attention to the treatment of this disorder. Consequently the local applications have not been properly made, and the internal treatment has not been more than half tried.

All these elements of error taken together impair the value of the statements of patients under this head, but do not entirely destroy their value. It will be seen in the chapter on Treatment that some positive facts have been established, and there is a probability that the experiments now in progress will considerably extend our knowledge in this direction. A large number of these cases have been reported by physicians, some of whom have given, and are now giving, much thought to this subject; observations of this kind are of an

expert character, and are therefore entitled to far more consideration than the isolated observations of laymen.

Replies :

Partial or complete relief	65
No relief	61

Special Replies :

Four recommend "Green Mountain cure." "Kidder's pastiles." "Inhalation of a solution of muriate of ammonia, chlorate of potash, and muriatic acid." "Turkish baths." "Down cellar-is the best place." Four speak well of "quinine before attacks." Three "Iodide of potassium relieves the asthma." "Solution of quinine (30 grs. to 1 $\bar{3}$), by douche atomizer." "Whitcomb's Remedy." "Hypodermic injection of morphine." "Sage's Catarrh Remedy." "Plugging the nose with cotton, and stopping it with court-plaster at night, has decidedly relieved." "Bleeding." "Strong coffee without milk." "Tannin snuffed up nose." "Violent cathartics and tartar emetics." "Opium at bedtime." "Inhalation of ether" (cured it at once for the season; in other seasons not efficacious). "Inhalation of chloroform." One was relieved by "electricity" (general faradization), and three by central galvanization; and one by "electricity" (method not specified). "Application of ice." "Cold water." "Steam baths." "Opium internally; a keg of ale before the attack." "I inhale strong ammonia; it nips the thing in the bud."

It appears, then, that more than half the sufferers from hay-fever are partially or completely relieved even by their imperfect use of imperfect methods. This is quite contrary to the general impression, which is that the disease is unrelievable.

. 41. *Have you ever tried the local application of a solution of quinine as recommended by Helmholtz?*

At the time when the circular was prepared this local quinine treatment was just becoming known. The replies show that it had been tried by a large number of the subjects, and with opposite results. Some were slightly relieved, others much relieved, and others not at all.

Replies :

Have not tried it.....	87
Have tried it without benefit.....	45
Have tried it with benefit.....	20

Many answer "Yes" without specifying whether they were or were not benefited. Less than half of those who have tried this remedy have been benefited by it. The hope that quinine would prove a specific for this malady is dispelled. It is, however, the best single remedy that has yet been tested on a large scale.

42. *Have you ever tried electricity in any form; and, if so, which current, and how applied?*

Electricity has been tried by such a limited number that the replies to this question are of little value. Some who had tried electricity did not know which current, and could not describe the application.

Replies :

No.....	130
Yes, with benefit.....	10
Yes, without benefit.....	9

Now that the relations of this disease to the nervous system have been pointed out, electricity should receive a more extended trial, and at the hands of those who are competent to use it. The result in these nineteen cases is surely encouraging. The majority are benefited. This is more than can be said of any other method of treatment yet tried.

43. *Are you better in the city or in the country?*

Replies :

Better in the city.....	28
Better in the country.....	12
No difference.....	8

These replies confirm what was already known, that the interior of large cities, out of reach of the abundant veg-

etable irritants, is for many sufferers something of a relief.

44. *Where do you find the quickest and surest relief?*

In the questions that follow, as in several that precede them, there is considerable intentional repetition, the purpose being to gain all possible details in regard to the exempt regions. Information on these points was of importance scientifically, as aiding us to get a true idea of the disease, and practically also, since every sufferer wishes to know the most convenient place of refuge.

Replies :

At sea.....	8
At the sea-side.....	19
In mountainous regions	35
Some portions of White Mountains.....	15
Rocky Mountains.....	7
In bed in a cool, close, dark room.....	8

Special Replies :

"Green Mountains, Vermont (elevation of 1400 feet)." "St. John's, New Brunswick." "Quebec." "Lyttleton, New Hampshire." "Upper part of Michigan." "Iowa and Nebraska." Four reply, "Denver, Colorado." "Nantasket Beach." Three refer to "Fire Island, New York." "Cincinnati, Ohio." "Martha's Vineyard." "Chicago, Illinois." "Europe." "England and Germany." "Switzerland." "Paris, France." "Halifax, and Eastport, Maine." "Rocky Mountains." "Idaho Territory." Four specify "Bethlehem, New Hampshire." "Overlook Mountains." "Near West Point, on the Hudson." "Cooperstown, New York." "Block Island." Three speak of "Lake Superior, Sault St. Marie." "Mackinaw." "Marquette, Michigan." "Essex and Monroe Counties, New York." "Niagara and Canada." "Coal regions." "Adirondacks." "Mount Desert (1500 feet high)." "Minnesota gives relief." "Switzerland beneficial." "On the water—Long Island Sound and the Great Lakes."

45. *Have you ever visited a region which relieved others without yourself experiencing relief?*

Replies :

No..... 65 | Yes..... 15

Special Replies :

"Sea-shore." "Nantucket." "Fire Island." "Long Branch."
 "White Mountains."

46. *Is the relief on visiting the non-catarrhal region immediate or gradual?*

Replies :

Immediate 28 | Gradual..... 21

Special Replies :

"In less than twenty-four hours." "Grow better in three days."
 "Immediate at the Glen House, White Mountains; slow at other places."

47. *If you leave the non-catarrhal region before the disease has disappeared, what is the effect?*

Replies :

Returns immediately in full force..... 45
 Returns gradually, with less severity..... 15

Special Replies :

"If I return to my home, I take asthma in less than an hour." "Have a little of it." "Goes right on as if I had remained in the city." "The disease is taken up at the stage it would have achieved had I stayed at home." "Is less severe."

48. *Have you ever visited elevated regions without benefit? If so, what region, and what elevation?*

Replies :

No..... 83 | Yes..... 17

Special Replies :

Five specified the "Catskill Mountains." "Lenox, Massachusetts."
 "White Mountains." "Little Mountain, Ohio." "Mountains of Eastern Pennsylvania and Mount Mansfield." "Overlook (3000 feet high)."
 "Live in mountainous district." "Catskill Mountains no good; Glen House entire relief." "Mountainous regions of Connecticut." "Alleghany Mountains." "Salt Lake City."

The information here contained is sufficient to show that

there is no rigidly defined non-catarrhal line. Elevation is but one factor. This subject will be discussed in the chapter on Prevention.

49. *Have you ever tried an ocean voyage? With what effect?*

Reply :

Yes, with perfect relief..... 22

None reply that they have tried an ocean voyage without relief.

Special Replies :

One replies, "Yes, partial relief." "A sail on salt water relieves me."

50. *Have you ever tried a trip to Europe, and what portion of Europe, and with what effect?*

Replies :

Yes, with perfect relief..... 23

Special Replies :

"Traveled through England and the Continent; no appearance of disease." "Twice during time of attack. Never had a return either in England or on the Continent." Two replied, "Paris; attack not so severe." "Did not have it while in Ireland."

51. *Have you ever tried a residence by the sea-side, and with what effect?*

Replies :

Yes, with slight, great, or complete relief..... 27

Yes, without relief..... 29

Yes, and was made worse..... 6

Of the twenty-seven relieved, only five state that the relief was complete.

Special Replies :

"Perfect relief always." The others use the phrases, "Good effect," "with great relief," "partial relief," "with benefit," or "beneficial."

"Was at Lynn, Massachusetts, in 1867; no asthma, but pain in the head."
 "In 1872 was at Ocean Grove, New Jersey; experienced relief when wind was from the sea; was in great suffering during prevalence of wind from land." "I live by Long Island Sound." "Live near the sea."
 Two replied, "Fire Island; no benefit." "Fire Island; gradual cure."
 "Tried Rye Beach; no benefit." "No relief, unless beyond land breezes."
 "Watch Hill one year, but had it severely there." "At Isle of Shoals."
 "Attacks less severe when at the sea-side." "Came on two days earlier." "Worse than elsewhere." "Aggravates the disease." "Effects unfavorable." "Visits to sea-shore always beneficial." "No good at all."

52. *Have you ever visited the South or South America, or any warm country, at the time of the attack, and with what effect?*

Replies :

Yes, with benefit 6 | Yes, without benefit 8

Special Replies :

"Spent a year in San Francisco, and did not have the disease; but a slight cold at the usual time of the attack." "No effect in Louisiana, Florida, or Virginia." "I went to South America before the period of the attack, and returned the 23d of October, and escaped that year." "South without benefit." "Had it in North Carolina." "Four years in North Carolina; better." "Southern Virginia; very beneficial." "Immensely." "Great benefit."

53. *Have you ever been benefited by a residence in a large city at the time of the attack?*

Replies :

Yes 22

Special Replies :

Six are better in Brooklyn, New York, "but never in an inland city."
 "Was in Washington in 1869; attack was nearly the same." "Chicago, with perfect relief." "Resided in Chicago in summer of 1869; disease did not come on until I went to the country, last of August." "Yes, by alternating between Brooklyn and New York." One replies, "Much worse." "I am better in Boston than at my home in the country, and I know a lady who is always well in Boston, though badly off in the country."

The answers to this interrogatory are more emphatic than to No. 43. The evidence that large cities give some relief, provided the victim remains during the season of the attack, is conclusive.

54. *Have you ever tried a prolonged use of tonic treatment, as quinine, iron, strychnine, phosphorus, cod-liver oil, or electricity, a few weeks or months before an attack, in order to prevent it?*

Replies:

Yes..... 20

Special Replies:

"Have tried quinine, iron, and strychnine, with the effect of delaying and alleviating the attack." "Quinine and phosphorus." "Have tried quinine not very long, but I think it helped me." "Used the past season with marked benefit a mixture of rhubarb and aloes." "Quinine, capsicum, and camphor." "Quinine mitigates the disease." "Quinine, with slight relief." Three replied, "No benefit."

There is evidence that this preliminary tonic treatment modifies the attack to a certain extent, and it is worthy of more extended trial than it has yet received.

55. *Is your case included in the statistics collected by Dr. Morrill Wyman in his work on "Autumnal Catarrh?"*

Replies:

Yes..... 4

CHAPTER IV.

GENERAL CONCLUSIONS.

FROM the statistics of these two hundred cases, as above analyzed, taken in connection with the literature of the subject, and personal observation of many sufferers at various stages of the disease both at home and in non-catarrhal regions, I derive the following general conclusions :

1. Hay-fever is essentially a neurosis—that is, a functional disease of the nervous system.

In order to induce an attack, there is necessary first of all a predisposition, frequently hereditary, to special and excessive sensibility of the nerves supplying the affected parts.

The debilitating influence of heat and the external irritation of a large number of vegetable and other substances are exciting causes merely, widely varying in their effects with different individuals, and of themselves are powerless to induce, or at least to sustain, an attack. As the disease depends mainly on the individual predisposition, no two cases will be precisely alike, but all will differ as individuals differ.

2. All forms of the disease in all countries, whether occurring in the spring, summer, or autumn, and variously known as “rose cold,” “peach cold,” “June cold,” “hay-fever,” “hay-asthma,” “ragweed-fever,” and “autumnal catarrh,” are but manifestations of one disease, for which the most appropriate name is “summer catarrh,” which may be subdivided into the early form, middle form, or July cold, and the later form, or “autumnal catarrh.”

3. As the disease is not due to any single specific cause, animal or vegetable, as has been supposed, no specific will ever be found for it. As with ordinary asthma, sick-head-ache, and other neuroses, to which it is in some respects analogous, the attacks may be prevented and relieved, and some remedies will act specifically for individuals; but no one remedy will ever be found to relieve all cases.

4. The leading indications in the prevention and treatment of the disease are the avoidance of heat, light, worry, dust, vegetable and animal irritants, and other exciting causes, fortifying the system by tonics before and during the attack, and relieving the symptoms by those sedatives and anodynes, locally or generally administered, which are found by experience to be best adapted for each individual case.

These indications can be met by spending the season of the attack—

(1) At sea; preferably in high latitudes, where the air is always cool, invigorating, and entirely free from vegetable and animal irritants.

(2) In elevated mountainous regions, where in all latitudes the air is cooler and more invigorating than at low elevations, and some at least of the vegetable irritants are less abundant.

(3) In high latitudes, at any elevation where the air is sufficiently cool.

(4) At the sea-shore, or on islands near the coast.

(5) For those who can not leave their home, keeping quiet in cool, closed, darkened rooms.

(6) For those who, in spite of these precautions, or from inability to take them, are attacked with the disease, the remedies should be quinine, arsenic, iron, and electricity before and during the attack; local applications of quinine and camphor by the atomizer; and for palliatives, any one or several of the great variety of remedies that experiment shows to be most useful for each individual.

The facts and arguments by which the first proposition, that hay-fever is primarily and essentially a neurosis, is established, are as follows :

1. Its hereditary character. The facts which sustain the view that this malady runs in families are of a most overwhelming character. From this we justly conclude that the disorder is of a constitutional character, in the sense that a tendency to it is innate in the organization. An inborn tendency to a disease may not of necessity be a specially nervous tendency. Thus scrofula, so called, and consumption and cancer may, to a certain extent, run in families, but none of them are distinctively nervous maladies. The most that is directly established by this fact of the hereditary nature of this disease is that the factors usually regarded as *primary*, such as dust, pollen, or vegetable emanations of any kind, are at most but secondary or tertiary causes ; that in no sense can they be primary, since of themselves they can not produce the disease. The same secondary and tertiary causes, acting on the hundreds of millions of the population of Europe and America, have no effect in this direction ; on but a few hundred thousand at most do they act as even exciting or irritating factors of hay-fever ; but when this disease is once established in any family, it is liable to appear in any of the descendants. It will not appear in all the near relatives—no disease is so uniformly transmitted as that ; but it may appear in one or several members. The law of inheritance in all directions—disease or health, genius or lack of genius, beauty or ugliness—includes diversity or deviation as well as similarity ; and all that can be proved of even the most transmissible diseases is that the descendants and near relatives of victims are more liable to suffer from those affections than persons not so related ; that, once established, the tendency is for the disorder to appear under various guises in near and remote descendants.

An important fact connected with the hereditary nature of this malady is that so many are sufferers from infancy or very early childhood, or as far back as can be remembered. It is possible, if not probable, that many of the afflicted ones had their first attacks in infancy, without any recognition of the fact on the part of nurses or parents or physicians. The idea of hay-fever in infancy is something new to the world; not one physician or parent in thousands would look for or suspect it, and any symptoms belonging to it would pass for a common cold. Another fact also that does not appear in the statistics, but of the reality of which I have convinced myself by personal observation of very many cases of hay-fever, and of a number of families in which it prevails, is that it may be transmitted to a certain extent interchangeably with other symptoms of the nervous diathesis. As has already been stated, very few among the laity, or among the profession even, have given sufficient thought to the hereditary transmission of nervous diseases, as taught by Anstie and other recent writers on these subjects, to observe in any family this phase of inheritance. Parents who are of the nervous diathesis, and who illustrate this diathesis by sick-headache or hysteria, may have children and grandchildren among whom prevail many nervous symptoms, of which hay-fever is but one. One or more may have hay-fever, while others suffer at different periods of life from the same symptoms as their parents, others from ordinary neuralgia, nervous dyspepsia, or chorea, and others still are all their lives entirely free from any form of neurotic disturbance.

These facts relating to the transmissibility of hay-fever are the more astonishing when taken in connection with the fact that the disease is so recent. There has scarcely been time as yet for the malady, so to speak, to get intrenched in families, for our grandfathers never heard of this trouble, except, perhaps, as a distant and doubtful wonder, while at the

present time it is increasing with such rapidity that in twenty-five years, it is safe to say, there will be thousands of families who have more than one representative in the hay-fever army.*

The bare fact of the transmissibility of the disease establishes then its constitutional character; it does not alone establish its nervous character—or rather it is but one link in the chain of evidence. Hay-fever might perhaps be a blood disease, and yet be as hereditary as it now is; but the following facts and considerations, taken in connection with the fact of inheritance, seem to put the question of the essentially nervous character of the malady beyond serious question.

2. It prevails mostly among those who have nervous diathesis.†

* It is probable that hay-fever, like other diseases, and like genius of various kinds, may, so to speak, run out of families in the course of time, but I have no facts on this point.

† I may quote here my remarks on the nervous diathesis as published originally in the first edition of Beard and Rockwell's "Medical and Surgical Electricity," p. 286:

By the term nervous diathesis we design to express a constitutional tendency to diseases of the nervous system. It includes those temperaments commonly designated as nervous in whom there exists a predisposition to neuralgia, dyspepsia, chorea, sick-headache, paralysis, hysteria, hypochondriasis, insanity, or other of the many symptoms of disease of the central or peripheral nervous system. What the gouty and scrofulous diathesis is to the blood, such is the nervous diathesis to the nerves.

The characteristic features of the nervous diathesis are:

1. A fine organization. The fine organization is distinguished from the coarse by fine, soft hair, delicate skin, nicely chiseled features, small bones, tapering extremities, and frequently by a muscular system comparatively small and feeble. It is frequently associated with superior intellect, and with a strong and active emotional nature. By these general features the fine organization is so positively distinguished from one of an opposite character that it is most readily recognized even by those least accustomed to the study of temperaments. It is the organization of the civilized, refined, and educated, rather than of the barbarous and low-born and untrained—of women more than of men. It is developed, fostered, and perpetuated with the progress of civilization, with the advance of culture and refinement, and the corresponding preponderance of

It is in the nervous, the nervo-bilious, and nervo-sanguine temperaments, and chiefly in the former, that hay-fever takes root, and in this fact alone we find presumptive evidence of

labor of the brain over that of the muscles. As would logically be expected, it is oftener met with in cities than in the country, is more marked and more frequent at the desk, the pulpit, and the counting-room than in the shop or on the farm.

2. Liability to varied and recurring attacks of diseases of the nervous system. The nature of these attacks and the frequency of their repetition will be variously modified by climate, the seasons, and other external conditions; by the personal habits and manner of life, and especially by sex and age. The typical manifestations of the nervous diathesis in infancy are convulsions, irritability, and sometimes grave cerebral disorder; of childhood, chorea, and analogous symptoms; of puberty, headache, chlorosis, spermatorrhœa, and occasionally epilepsy; of maturity, sick-headache, neuralgia, dyspepsia, with its accompaniments, constipation, insomnia, nervousness, and emaciation, functional and reflex and occasionally organic paralysis, hypochondriasis, neurasthenia, and, in women, hysteria, spinal irritation, and the long train of nervous conditions associated with diseases of the organs of reproduction; of old age, softening of the brain and organic paralysis. A child born with nervous diathesis may suffer in infancy from attacks of spasms of the glottis; in childhood, from chorea; at puberty, from spermatorrhœa; between the age of twenty and fifty or sixty, from the different grades and forms of dyspepsia and neuralgia; and, in old age, may suddenly be removed by an attack of apoplexy, or gradually fail beneath the slow advance of cerebral softening or degeneration.

3. Comparative immunity from ordinary febrile and inflammatory diseases. The nervous diathesis appears, within certain limits, to *protect* the system against attacks of fever and inflammation. It is a matter of just and common observation that individuals of nervous organization are less liable to be attacked by fevers and general inflammatory conditions than the phlegmatic, the plethoric, and the hardy. It is furthermore observed that when once a fever—as typhoid, malarious, or rheumatic—has seized hold of a patient with the nervous diathesis, it is much less violent and less frequently fatal in its attacks than when its victim is muscular and full-blooded. We are sufficiently acquainted with the nature of fever to know that it is attended with rapid combustion. It is obvious, therefore, that the severity and intensity of a febrile attack on the body must, to a certain extent, depend on the quantity and quality of the combustible material of which that body is composed.

There seems, indeed, to be something in the nervous diathesis which is antagonistic to the febrile conditions, or at least to those forms which are developed by ordinary malaria, for it is certain that on the average (with

the strongest kind that the disease is of a nervous character; for it is well known that all constitutional, fixed diseases in nervous temperaments take a nervous form. Still further,

numerous exceptions, of course, on both sides) fevers and inflammations are less fatal among brain-workers than among muscle-workers, even when subjected to the same exposure. Now it is among the brain-working class that the nervous diathesis is most distinctly marked and most frequently observed.

This great law also applies to races and nations. Although the question is so complicated by differences of external conditions that it is impossible to establish by statistics the relative quantity and quality of disease in civilized and barbarous lands, yet history and general observation seem to show that nearly all savage tribes are more liable to fatal attacks of certain forms of inflammatory and febrile disease than the civilized. The history of the North American Indians seems to point to this fact with considerable conclusiveness. Making all proper allowance for the better sanitary conditions, the higher prudence, and the stronger force of will of the civilized man, it would appear that he is less liable to contract certain forms of inflammatory disease than the barbarian, even when exposed to the same influences.

The nervous is the prevailing diathesis in the United States. In this country, more than in any other, are observed the manifold phases of dyspepsia, neuralgia, insomnia, and nervous exhaustion, especially among our brain-working population. The fact that the women of America are more fragile and nervous than those of England and the Continent, and lose their beauty earlier, has long been recognized.

This difference in character between the American and his European ancestors is suggested and confirmed by a corresponding difference in physique. Truly says Palfrey, in his history of New England: "The curly hair, moist skin, and sanguine temperament, so general in Great Britain, have in New England given place to straight hair, dry skin, and the nervous or bilious temperament."

The remark of Emerson, also, that one hundred Englishmen would weigh one quarter more than an equal number of Americans, must be approximately correct.

Correlation of Nervous Diseases.—There would appear to be cogent reasons for the theory that the law of correlation and conservation of forces is as true of disease as of health. The recognized relation that exists between certain cutaneous affections, as the manifestations of cerebral or other disease that appear in children, frequently, on the disappearance of an eczematous eruption; the relief of dyspepsia, of neuralgia, hypochondriasis, on the appearance of affections of the skin of various kinds in different parts of the body; the sudden metastasis of pain from one region to another, as from the hands to the feet, from the back to the

accidental and febrile maladies, when they attack nervous people, develop nervous symptoms. Hay-fever patients are frequently, if not usually, well, and sometimes very strong and

limbs, from the stomach to the head, and alternations of sick-headache and indigestion, of cerebro-spinal and gastric disturbance with which nervous patients are so familiar; the mysterious phenomena of inheritance, by which the nervous diathesis that appears in the parent in the form, for example, of insanity, reappears in one child as chorea, in another as epilepsy, in another as hysteria, in another as neuralgia or paralysis, and successively reappears by almost innumerable phases in distant generations; the antagonism which certainly exists between nervous and febrile affections; the relief or cure of nervous symptoms, amounting to a revolution in the system, that results from a course of fever or acutely inflammatory disease; and, finally, the very remarkable results that flow from counter-irritation, by whatever means produced—all these facts of general observation, taken together, would seem to give weight to the theory that the secret forces of diseases are as truly correlated to each other as heat or gravitation, as magnetism or electricity.

The nervous diathesis should be distinguished from the tuberculous, with which it is frequently combined, and with which also it is liable to be confounded. The external appearances of the two are not very dissimilar, but their symptoms and their behavior under exposure, and especially their prognosis when existing separately, are radically different. The tuberculous diathesis frequently accompanies a fine organization; but fine organizations only in a certain proportion of cases have a tuberculous diathesis. The nervous diathesis is frequently not only not susceptible to tuberculosis, but apparently much less so than the average, and sometimes, indeed, seems to be antagonistic to it, for there are many nervous patients in whom no amount of exposure or hardship or imprudence seems to be able to develop phthisis, although they may appear to suffer intensely and constantly from the various phases of nervous disease. The tuberculous diathesis frequently appears in the coarsely organized, the plethoric, and the muscular. It develops most rapidly and perhaps commits its greatest ravages among the poor, the oppressed, and degraded. On the contrary, the nervous diathesis, though found more or less among all classes of civilized lands, is chiefly found among the higher orders. Both of these diatheses are the results and concomitants of depressed vitality; but the nervous is peculiar to brain-workers and civilization, while the tuberculous also afflicts the day-laborer and the savage. The one is perhaps an impoverishment of the blood, the other an impoverishment of the nervous force.

The distinction between the nervous and the tuberculous diathesis is seen again in the contrast in their prognosis. The nervous diathesis in many of its manifestations is speedily relieved, but rarely permanently

capable of great endurance ; and from this undeniable fact the nerve theory of the disease has been vigorously assailed. Men point to large, portly, and wiry men, like Webster or Beecher, and ask, "If hay-fever be a nervous disease, how is it that these men suffer?" Skepticism of this sort comes from an entire misconception of the meaning of the term nervous. Nervousness is assumed to signify debility—of body or of mind, or of both ; and to show itself by paleness, emaciation, and incapacity for muscular or cerebral toil. Of all popular delusions, none are more baseless than this. The nervous temperament—even the nervous diathesis, and various manifestations of that diathesis—may coexist with an imposing physique, and with both the appear-

eradicated ; the tuberculous diathesis is less susceptible to actual relief, but in occasional instances may be absolutely cured. The nervous diathesis, by protecting the system against inflammations, seems to lengthen life ; the tuberculous, by attacking and destroying a vital organ, most fearfully shortens it. In both the conflict between the remedies and the disease is always hard and sometimes long ; in the nervous diathesis it is a guerrilla warfare, in which there are frequent skirmishes, with continual fightings and retreatings, where the enemy is disinclined to concentrate his forces or allow himself to be drawn into a decisive encounter. In the tuberculous diathesis it is a pitched battle for the possession of a vital organ, where the enemy fights behind intrenchments, and usually obtains the mastery.

A very interesting fact connected with the nervous diathesis is that patients in whom it exists are sometimes positively benefited by attacks of febrile and inflammatory disease.

This is indeed one of the very few of the popular impressions on the subject of medicine that appear to be sustained by scientific observations. The genial Dr. John Brown, in the sketch of his father's memoir, uses the following language :

"Many a man's life is lengthened by a sharp illness ; . . . a brisk fever clarifies the entire man. Such a breathing-time my father never got during that part of his life and labors when it would have availed most." *

Inflammations seem to act antagonistically to the nervous diathesis on the principle of counter-irritation. The theory that they, in some way, derive from the nervous to the vascular system is plausible, though it can not be satisfactorily demonstrated.

* "Spare Hours," by John Brown, M.D. Am. ed., pp. 206, 207.

ance and the reality of high health. Physiology and pathology may thus go hand in hand; few people are wholly sick or wholly well; in certain directions we may be diseased or liable to disease—in all other directions we may be almost absolutely strong. Nature has given to all well-organized beings a sufficient amount of reserve force to enable them to contend with a certain degree of success against the exhausting influence of an inherited tendency to disease. Hence the notorious fact established by statistics and by general observation that nervous temperaments are longer-lived than other temperaments. Hence the oft-noted fact that those who are always ailing never die, but keep on entering into the seventies, eighties, and nineties, outliving, it may be, by a series of years their tough, phlegmatic, and uncomplaining neighbors. Hence, also, the fact, that I have elsewhere established by evidence that has already carried conviction to many minds, that brain-workers, in spite of their excesses and many cares and close confinement, live longer than muscle-workers.*

Among the poor and laboring classes of our large cities hay-fever is almost if not entirely unknown. In the large dispensaries of this city, thronged every year by hundreds of thousands of our foreign population and the poorer class of native Americans, I can find no cases of declared hay-fever. Among the same number of people in the higher ranks of life there would be hundreds of cases of this disease. The tenement-house population from which dispensaries obtain their supply of patients of every other known disease, acute and chronic, is exposed to as many external exciting causes of hay-fever as that which lives behind fronts of marble and brown-stone; and yet Fifth Avenue is quite familiar with hay-fever, while Five Points has not a case.†

* "Longevity of Brain-workers." Transactions of the American Public Health Association, vol. i.

† Of 154 cases collected by Dr. Phoebus, 146 were educated, and 8 were uneducated.

Hay-fever is, then, a disease of the fashionable and the thoughtful—the price of wealth and culture, a part of the penalty of a fine organization and an in-door life. This fact, which I was by no means the first to observe, has been seized upon by the sufferers from the disease, and they have found in it a source of consolation. They point to Southey, Daniel Webster, Chief Justice Shaw, Helmholtz, and Henry Ward Beecher, and a host of other names illustrious in science, in art, in law and statesmanship, and in literature, and they rejoice that at least they are in good company.

It would, however, be the reverse of right reasoning to infer that hay-fever, as such, has any special affinity for genius; it is simply a disease of the nervous diathesis, of the mental temperament, and it makes no difference whether the sufferer is or is not cultivated or wealthy. As a fact, the nervous diathesis prevails chiefly among the educated and well-to-do classes, and for obvious reasons; and it is among these classes that functional nervous diseases of all kinds abound. If a census were made of all the sufferers from sick-headache, the list would, I am sure, include a large number of the brightest men and women of the world; hay-fever would be distanced both in the number and quality of its followers. Conversely it would be found that sick-headache is comparatively rare among the ignorant and degraded, and among those of any order of intelligence who labor with their hands in out-of-door employments.

3. It is peculiar to modern civilization, and most prevails in those climates and countries where other functional nervous diseases prevail.

We have seen already that hay-fever is a disease of the nineteenth century; it has arisen side by side with neuralgia, with nervous dyspepsia, and allied disorders, of which the eighteenth century knew little or nothing.* There are phy-

* Increase in population will hardly account for this great and easily

sicians who can recall the time when neuralgia, now the heir-loom of all well-to-do families, was an unknown word, and when nervous dyspepsia, now so common as to excite no comment, was unheard of.

To attempt to prove that these diseases were as prevalent in former days as now, and to assume that they were unrecognized both by the sufferers and their medical advisers, is to attempt and assume too much, and to do violence to both history and analogy.

That nervous diseases or symptoms, such, for example, as asthenopia, chorea, and hysteria, by a kind of psychical contagion, may attack colleges, schools, and communities, we all will admit freely, for the history of medicine is filled with illustrations. It is not, however, supposable that all cases of functional nervous diseases are the result of mental contagion, and no one, I presume, would make this claim. Likewise the assertion that hay-fever, as it is observed in recent times, is wholly a mental disease, the result solely of mind acting on body, and spreads from individual to individual, from family to family, psychologically rather than physically, is as untenable as it would be to make a similar claim for small-pox or scarlet-fever. The facts that so many are first taken in infancy and early childhood, and that in the great majority of cases the first attack is not suspected to be hay-fever, refute the fallacy which some, in partial sincerity, have advocated, that this disease is common because it is fashionable.

Hay-fever, in its early, middle, or later form, is found in all civilized countries ; it is most frequent by far in England and the United States ; and in the United States it abounds especially in the northern and eastern portions, where func-

observed increase in the number of sufferers from this formidable evil. In quite limited localities the number of patients have multiplied during the past quarter of a century many fold.

tional diseases are so abundant. In France and Germany the disease is certainly less often met with than in England. On the Continent, indeed, it is sometimes spoken of as English disease. Trousseau, in his famous lecture on asthma, refers in an incidental way to this disease as one peculiar to England; and assumes, evidently without having given much thought to the subject, that it is simply ordinary asthma made worse by the hot weather of summer.

There is no region of the world where functional nervous diseases of all kinds are so common as in the northern part of the United States. Sick-headache, nervous dyspepsia, neuralgia, nervous exhaustion—all abound here as nowhere else on the globe. As we go south diseases of this kind diminish in frequency, until in the Gulf States we find a real sanitarium for this class of patients. Nervous cases, according to my observation, as well as that of some of my medical friends in New York and vicinity, receive more positive benefit from a trip south than consumptives. In England, these functional nervous diseases—neuroses, as they are called—are not unfrequent; and yet, as is well known, they are far less common than in the northern section of the United States.

Structural nervous diseases—those which depend on coarse injuries of the brain or spinal cord—such, for example, as locomotor ataxia, progressive muscular atrophy, and the like, are perhaps even more frequent in Germany and France than in this country; certainly one meets in the hospitals of those countries a larger proportion of such cases than here. But diseases of this sort are quite distinct from the neuroses just mentioned; they occur in very different types of organization, and are brought on by entirely different causes.

Among our foreign population, high or low, hay-fever is rarely seen. Dr. Jacobi, of New York, whose practice among the better class of Germans is very large, tells me that he has

never seen a case. Dr. Chaveau, who has large opportunities for observation among the French of this city, gives similar testimony.

One case of hay-fever in a colored child was reported to Dr. Wyman. The child resided in Delaware County, Pa. Its father was an Indian. I have never seen or heard of any other case in a negro or in an Indian.

4. The symptoms of the disease, from first to last, through all the stages, are largely of a nervous character, and are made better or worse by mental influences.

The premonitory stage of lassitude, sleeplessness, poor appetite, and depression, which some, though not all, experience, are pretty clearly nervous symptoms, although it is admitted that certain fevers may begin in this way. From ordinary cold in the head, hay-fever in its earlier stage differs in that it is accompanied by severe itching of the eyes, nose, and throat, more violent and frequent sneezing, more abundant discharge from the eyes and nose, and greater redness of the conjunctiva. These symptoms, taken together, resemble very markedly the effects of a section of the sympathetic in the neck, and powerfully suggest the nervous more than inflammatory action. As Dr. Wyman well remarks, "In all phases of this singular disease the nervous element is strongly marked."

Asthma, which appears in the second and third stages, is now generally regarded as a nervous symptom. Trousseau, himself a sufferer from ordinary asthma, in his lecture on that subject, is unwavering in his opinion that the disease is a neurosis, and the treatment advised is based wholly on that theory. Likewise, cough itself, as is now well established, may be a purely nervous symptom, in no way associated with any inflammatory disease of the lungs, bronchial tubes, or larynx. Quite remarkable cases of nervous cough have at various times fallen under my own observation.

A young girl, whose cough resembled almost perfectly the bark of a dog, was at one time referred to me by Dr. Leaming, who found no evidences of pulmonary or other disease to account for the cough. So complete was the resemblance to the bark of a dog that a patient who chanced to come in while the girl was there, and who saw her, but did not observe that she was coughing, asked me why I did not "put that dog out of the room." More recently I have had under my care a lady who for many years has been annoyed by a teasing cough, that, by the history of the case, and by the careful examination of Dr. Austin Flint, who saw the lady with me, is entirely nervous. Under treatment directed to the nervous system, relief appeared almost instantly. These are but striking illustrations of what all medical men now admit—the possibility of a cough being simply a nervous symptom.

The itching, the sneezing, the lachrymation, the cough, the asthma, may all be signs, not of inflammation in the first instance, but of nervous irritation. True enough, symptoms indicative of inflammation do appear as a result of this irritation, but it is not necessary or just to argue that they are the disease, or that the disease is of an inflammatory character because they appear in it.

The suddenness with which paroxysms appear and disappear is a fact bearing strongly in favor of the nerve theory. Without any apparent or traceable exciting cause, all the symptoms may instantly grow worse, and after an hour, more or less, as suddenly depart. These paroxysms may come on regularly or irregularly. The constitutional symptoms that sometimes precede the disease have already been spoken of; those that accompany the disease are of a similarly nervous character. The itching and eruptions on different parts of the surface; the malaise and depression; the headache, the chilliness, the cold sweats, the indigestion—all taken together, point to the nervous system.

Even Blackley, who advocates unreservedly the pollen theory of the disease, admits that the symptoms are not indicative of inflammation. In his experiments with pollen he found that its leading action was to produce effusion, that the effused fluid consists only of serum, and does not cause pain, heat, or redness ; and he concludes that the power of dilating, and of causing exudation from the capillary vessels of the connective tissues, is the peculiarity in the action of pollen.

5. It sometimes appears to take the place of other diseases, and to be replaced by them. This vicarious character hay-fever shares with a large number of diseases—not nervous diseases alone, but those which are not distinctively so ; and this fact of itself would not establish the nerve theory.

It appears in rare cases to be replaced by acute febrile disorders like typhoid-fever ; in one case cholera morbus seemed to have an influence. In quite a number of cases various nervous symptoms have disappeared on the appearance of the habit of hay-fever, suggesting that it may act as a protection against certain other maladies.

A physician of Scranton, Pa., suffered terribly from attacks of dyspepsia every August and September. In 1875 he had the hay-fever, which took the place of the usual dyspepsia.

In one case—that of Mr. William M. Davis—the nervous dyspepsia returned on the disappearance of the hay-fever at the White Mountains.

6. It is affected for better or for worse largely by those influences that operate through the nervous system. The remedies that thus far have been of the highest service for the relief of the symptoms, as quinine, arsenic, electricity, stramonium, alcohol, opium, ether, are pre-eminently nerve remedies, and in all the diseases for which they are used accomplish their results directly through the nervous system. Hygienically it is found that *cold*, of any kind or from what-

ever source—cool land-breezes, cool sea-breezes, the coolness of elevations or high latitudes, or a cellar or dark room—never fails to relieve ; and for a large number of nervous states cold is one of the most potent of tonics.

The symptoms are powerfully under the influence of the mind. In certain cases the first attack seems to be the immediate result of overwork and overworry ; and in the height of an attack the paroxysms are modified, one way or the other, by the state of the emotions. Dr. F. D. Lente tells me that a lady whom he knew, who for forty years had suffered from hay-fever, had the misfortune in the spring of 1873 to break her arm ; the following summer she had no attack from her usual enemy. The cases where hay-fever skips a year are so infrequent that this is probably more than a coincidence.

Dr. Hyde tells me that the voice of a sufferer, on reading aloud the account of the symptoms as given in Dr. Wyman's book, became husky and thick, as though the mind were acting on the body, and inducing some of the very symptoms described. In this story there is nothing incredible ; it is in harmony with all that is known of the relations of body and mind, and it is confirmed by instances yet more striking.

Some are unable to read or write with any comfort. One lady, the wife of a physician, was so troubled with photophobia that she was obliged to keep a part of the time in a dark room.

Dr. Phoebe mentions the case of a patient who had an attack of sneezing, and other hay-fever symptoms, "while looking at a beautiful picture of a hay-field." Still another patient, "on thinking of the disease, and seeing his swollen face in the glass, had all the symptoms."

Dr. Stephen Smith, of New York, is my authority for the following experience : A gentleman and a lady were riding

out one day ; the gentleman was a sufferer from hay-fever ; the lady had never had it. During the ride they conversed of the symptoms ; and when they returned the lady was attacked by them. A case of this kind may be accounted for by mental influence ; or it is possible that on their ride they may have come near some irritant.

7. Of the threefold factors that seem to be necessary for the production of the disease—predisposition, the depressing influence of heat, and external irritants of some kind—no two are sufficient to excite the symptoms in any degree unless one of the two be the predisposition.

Heat and external irritants of all kinds are every summer acting on millions of human beings without the effect of producing, in the slightest degree, any hay-fever symptoms, save, perhaps, the general lassitude that in this country almost all experience during the so-called “dog-days.”

When, on the contrary, the depressing influence of heat acts upon a predisposition, it may excite for a short time hay-fever symptoms, as is shown by the experience of those who suffer after entering an overheated room ; some, again, are attacked in the summer under circumstances that exclude the possibility of any vegetable irritants being present.

Likewise any one of the twenty or thirty exciting substances, as hay, dust, flowers, and certain animals, may start the symptoms for a short time in midwinter, in any person specially predisposed, as is shown by the clear evidence of very many sufferers.

In order to produce the full symptoms of the disease, and to make them go through the complete course, it is necessary that all three factors should be combined : the removal of either the second or the third relieves, and the removal of both entirely breaks up the disease. In the hottest weather the sea-breeze causes some abatement, because it is free from vegetable irritants ; the coming on of a cold day causes

instant improvement, even in the midst of all the vegetable and other irritants.

Some of those who at home suffer severely from exposure to certain flowers or fruits, when in the mountains or in cool regions, or in the winter, are not annoyed by them; others, however, experience temporary inconvenience from exposure to special irritants at all seasons of the year and in all localities. One correspondent, when at St. Paul's, only suffers when a warm southerly wind prevails.

8. Like other functional nervous diseases, hay-fever appears to be excited more by heat following cold than by continuous heat.

One cause of the nervousness of the American people is very likely the alternation of extreme heat and extreme cold in our climate. In the northern part of the United States the tropics and the poles are represented; half the year we freeze, half we roast; not England nor France nor Germany are afflicted in this way.

A climate where the heat is far greater than with us, but is uniform, or more nearly so, does not excite nervous diseases, but has an effect directly opposite. Warm climates are the best resorts for the nervous. In countries where the climate is equable and warm, as Italy and Spain, or in countries where it is hot all the year, as in India, the functional nervous affections so common in America are but little known.

The effect of alternations of heat and cold is highly stimulating, as physicians who apply alternately ice and sponges holding hot water to weakened parts well know; and the effect of a climate like ours is to keep us constantly stimulated. This stimulation is followed by exhaustion. This exhaustion is increased by the overwork of body and mind, especially of the latter, which this stimulation encourages. The Americans not only work hard, but they work hurriedly,

in a manner calculated to exhaust the system and induce nervous symptoms.

Hay-fever most abounds where these extremes of temperature are most marked, and it diminishes as we go south. I have never heard of a case in South America. In India, according to Pirrie, Englishmen may suffer from it.

Prolonged residence in the South seems to have the effect to make the disease grow milder, and may eradicate the predisposition.

RELATIVE INFLUENCE OF THE VARIOUS EXCITING CAUSES.

Of the very large number of causes which, acting on a nervous predisposition exhausted by heat following cold, may give rise to the symptoms, some are far more potent than others. Thus the early form is chiefly excited by the pollen of grass and flowers; the later form by the pollen of Indian corn and Roman wormwood or rag-weed; and all forms by cinders, smoke, dust, bright sunlight and gaslight, certain fruits and animals, night-air, draughts of air, etc. Yet most of these latter mentioned are minor causes, insufficient of themselves to arouse the full symptoms of the disease for any great length of time, unless the symptoms are already under way; but when the disease is already upon the victim, a short exposure to any one of these influences may induce a paroxysm. Those who are predisposed to hay-fever, and who from some peculiarity of organization are susceptible to any special substances, as fruits or flowers, or hay, or odors of any kind, may have the symptoms excited for a short time at any season of the year when they come into the presence of these offensive substances; the symptoms thus excited are mostly of short duration. In order that the symptoms shall be *maintained* through a regular attack, it seems to be necessary that some one or more causes should act with varying force frequently if not continuously, and some

of the causes above mentioned, as pollen of various kinds, and Roman wormwood, do so act, since they are in the air at all times, at certain seasons, and are sufficient to maintain the disease where there is a predisposition to it, and the weather is sufficiently depressing. Those persons who are susceptible to certain fruits, or to the presence of certain animals, or to dust of any kind, would not be likely to have full and prolonged attacks of hay-fever at any season of the year, if these were the only causes that acted unfavorably upon them. It is found usually, if not invariably, that those who have these idiosyncrasies have others also. Why some are attacked by the early form, and others by the middle or later form is due undoubtedly to the fact that the former are more susceptible to the pollen of grass and flowers, and the latter to the pollen of Indian corn and Roman wormwood, or perhaps to certain fruits of autumn, since most if not all of the other irritants—smoke, dust, cinders, night-air, etc.—are as abundant and as constantly acting in the later as in the early part of summer.

The sum of all is that there is no one exciting cause which can be regarded as the exclusive factor in starting the symptoms in a predisposed subject; there are, indeed, no two or three causes—there are at least thirty distinct substances or influences that are known to act on different persons with varying intensity. This is certainly proved by the replies to question 19 (p. 54). It is not improbable that further researches may extend the list to fifty or even one hundred.* It is probable there are various forms of vegetative life, many fruits and flowers, besides those mentioned, which

* In regard to dust, which heads the list of exciting causes, it is evident that the term is most indefinite, and includes many kinds of "matter in a wrong place." We have seen that some are susceptible to indoor dust only, others to out-door dust; the constituents of the two forms being usually quite different. Besides, both forms of dust must vary widely at different times and in different places, and at different seasons.

may excite at least transient symptoms at any season, and during the attack may greatly enhance the suffering. Dr. Wyman mentions a case where attacks like hay-fever came on after eating a few chestnuts, also after eating filberts, English walnuts, and buckwheat cakes. A prominent physician of New York informs me that his son, who is asthmatic, is so susceptible to buckwheat that if he enters the front door of a house while buckwheat cakes are being cooked in the kitchen, he will be attacked at once. One of my patients is badly affected by eating watermelons. It is probable that in some of these cases the irritation of the substance against the pharynx is the real philosophy of the action of the edible, and not any disturbance during or after digestion.

Trousseau, speaking of asthma, mentions a case of a man who could not pass the shop of a rope-maker without being at once seized with a fit; either the smell or the dust of the flax brought on the attacks. Trousseau, himself a sufferer, declares that the worst fit he ever had was when, suspecting his coachman of dishonesty, he went up-stairs to a loft and had the oats measured in his presence. Trousseau argues very justly that the agitated state of his nervous system at that particular moment predisposed him to the irritating influence of the dust from the oats, which at any other time would have had but little effect. In this thought is really the philosophy of hay-fever, which is a complex resultant of external irritants, whose name is legion, acting upon a nervous system predisposed by inherited or acquired sensitiveness in that direction, and by the depressing influence of heat.

COMPARED WITH ORDINARY ASTHMA.

Asthma itself is a nervous symptom, as is now generally conceded, but no more so than the cough, the sneezing, itching, and the sudden discharges from the eyes and nose, and

the headache, backache, and general debility that make up the different varieties of hay-fever; all these symptoms are nervous symptoms, and all are to be similarly explained. Trousseau, whose admirable lecture on asthma should be carefully read by those who are interested in this subject, says that sometimes ordinary asthma begins with symptoms of coryza—of running at the nose. I quote the passage entire: * “All at once, and without his having been exposed to any of the causes which generally bring on a cold in the head, the patient begins to sneeze with extreme violence, and in the most strangely obstinate manner. His nose runs profusely; his eyes swell and fill with tears; then, after a few hours, these symptoms disappear as rapidly as they set in, and in the course of the evening, more commonly during the night, asthma comes on with its usual characteristics. During four, five, or six days in succession, and even more, and nearly always at the same time, the same phenomena repeat themselves, and terminate in the same way. In other instances the whole paroxysm is exclusively constituted by this paroxysmal coryza, occurring independently of all appreciable causes, or under the influence of causes which are as varied and as curious as those which, as I shall tell you presently, induce an attack of genuine asthma.”

If Trousseau were not here describing cases of hay-fever that came under his observation, but which he failed to recognize, he has certainly described symptoms which are perfect duplicates of many of the symptoms of this affection.

Rightly analyzed, hay-fever is but a periodic asthma, complicated by nasal and other symptoms that do not appear in most of the attacks of simple asthma. The philosophy of one disease is really the philosophy of the other. The greater definiteness in the periodicity of hay-fever; its coming on most in the spring, summer, and autumn at certain times, is

* “Lectures on Clinical Medicine,” Bayere’s translation, part iii, p. 619.

explained partly by the depressing influence of heat, and partly by the presence in the atmosphere at that time of a number of vegetable irritants that do not exist in the winter, or in very cold regions at any season. Light and brief attacks of hay-fever may, however, as we have seen, come on at any season, provided the irritant causes are allowed to operate.

Ordinary asthma follows the law of the more complex and periodic form of asthma, or hay-fever, in these important features :

1. It is hereditary.
2. It is more or less periodic.
3. It is paroxysmal.
4. It is correlated to other functional nervous affections.

The late Dr. Anstie wrote a paper showing the relation between asthma and certain neuralgias.

5. The paroxysms are excited by a great variety of irritants, different persons being differently affected.

6. It is singularly obstinate, and is relieved by the same remedies.

Trousseau, whose knowledge of hay-fever was so limited that he doubted its existence, declared that, although he had seen several cases, he had "never been able to distinguish it from asthma with periodic recurrences, these coming on much more frequently in summer than in winter."* So far as it goes this statement is correct, and is justified by all the researches that have yet been made on the subject. Yet further, Trousseau states that asthma is a summer complaint, and that sufferers are more subject to it between May and November than between November and May.

The same author also mentions the case of a lady who lived at Narbonne, and who had a violent cold in the head whenever the wind blew from the sea. The cold in the head

* Op. Cit., p. 631.

would last one or two days ; but there would be no difficulty of breathing. One of the children of this lady, five years of age, would be attacked with sneezing, and other evidences of cold in the head, whenever he exposed his face to the early rays of the sun or to a fresh breeze. This susceptibility was observed eight or nine months in the year.

An engraver who consulted Trousseau had attacks of sneezing, with discharge from the eyes, two, three, and four times a day. At one time he had asthma. He had suffered from bleeding piles, and when the piles ceased to bleed the attacks of sneezing came on. At one time, also, he had an eczematous eruption, on the appearance of which the sneezing left him. The case as a whole was a remarkable instance of the correlation of nervous symptoms, and of the fact that asthma may take the place of other nervous manifestations.

Trousseau remarks the fact that these attacks of sneezing come on during the day, while the attacks of asthma come on at night. This general fact is true of hay-fever. This acute observer and able reasoner further states that he had "often predicted to individuals suffering from this curious form of coryza, who had never felt any thing about the chest which could justify my assertion, that they would sooner or later become subject to asthma, and they have subsequently come back and told me that my suspicions had turned out to be true."*

Instances of individual susceptibility to various substances crowd the pages of hay-fever and asthma literature. I will mention a few more in addition to those already referred to. One strong man was seized with asthma whenever rice was threshed near his residence. One woman had a fit if she entered a room when a feather-bed was being shaken. *An eminent physician of New York, it is said, can not sleep

* Op. Cit., p. 620.

on a feather pillow. An apothecary of Tours, France, never could dispense ipecac without bringing on a terrible attack of dyspnœa. Dr. R. S. Tracy tells me of a lady, the wife of a physician, who was so susceptible to ipecac that she could tell when her husband was dispensing it, even when she was in the top of the house. Another chemist was similarly sensitive to the presence of linsseed or scammony.

Dr. Hyde Salter, in his work on asthma, mentions a clergyman who was made asthmatic by the neighborhood of a hare or hare-skin, and by this test alone could tell whether any of his parishioners had been poaching. One person could not bear the presence of a guinea-pig; another was distressed when in the neighborhood of deer. For the same reason one boy never could keep rabbits. Cats, dogs, horses, sheep, and wild animals of various kinds, may excite in the same manner paroxysms of asthma and hay-fever. One of Dr. Hyde Salter's patients never could visit the Zoological Gardens. All these peculiarities may be hereditary.

Mr. G. W. Olney says: "I am injured by watermelons and by all fruits when raw; can eat cooked fruits; can not eat raw vegetables, but can eat cooked vegetables; watermelons make me speechless. These substances act on the throat; they cause a swelling of the throat. Effect immediate."

In such cases the injury, as has already been suggested, is through the mechanical action of the fruit on the pharynx. In other cases fruit acts injuriously after it is swallowed, and in the process of digestion. Golden-rod (*solidago odora*) is also regarded as one of the exciting causes of the paroxysms in certain localities.

Mr. Alfred Hand writes that the damp night-air is injurious to him even at the Twin Mountain House. The frying of salt pork is mentioned by one lady.

HAY-FEVER COMPARED WITH SICK-HEADACHE.

The nature of hay-fever may be best understood by comparing it with some well-known neurosis with which the profession and the laity are more familiar, and to which in some of its distinctive elements it is more or less analogous.

Sick-headache is such a disease ; not only in its symptoms, but in the history of the theories in regard to its nature it presents analogies to hay-fever of a most interesting character.

1. It occurs in nervous, nervo-sanguine, and nervo-bilious temperaments, being one of the many manifestations of the nervous diathesis. Strong and healthy men, as well as frail, sensitive women, are those on whom this malady inflicts its tortures ; but the strongest and healthiest of its subjects are yet nervously susceptible.

2. It is found mostly, if not entirely, in the civilized regions of the north temperate zone, where other functional nervous diseases are most rife ; it is a modern disease, and is clearly increasing with civilization. In the northern portions of the United States there are few families among the brain-working classes that can not supply one or more cases of sick-headache.

3. It is a functional nervous disease, the seat of which is in the central nervous system, and is excited by a large variety of external and internal irritants. An attack of sick-headache may be provoked by partaking of indigestible food, by over-eating or by over-drinking, by going too long on an empty stomach, by the use of special articles of food or drink in any quantity, as coffee, cider, or beer, salt meat or sausages ; by overwork of body or mind, by anxiety, loss of sleep, by depressing weather, by the breathing of confined impure air, by exposure to strong sunlight or gaslight, by excesses of any kind, by mechanical agitation of the nervous

system, as the jolting of a wagon or car, or the rolling of a ship ; and, indeed, by any irritating, exciting, or depressing cause whatever. Causes that bring on an attack in one individual may not in another, or in the same individual at different times. In some cases the attacks come on without any traceable exciting cause.

4. Any one of these exciting causes, or all of them combined, can not avail to induce an attack where there is not a previous nervous predisposition. The great majority of people never have sick-headache, even when exposed to all the exciting causes in full force.

5. It is hereditary, though, like all other neuroses ; it often skips a generation, or interchanges with some other and allied disorder. One of the neuroses with which it may interchange is hay-fever itself. Very many members of one family may suffer.

6. In the manner of the appearance and disappearance of the symptoms, and in their periodicity. Sick-headache may come on gradually or suddenly ; with little or no warning all the symptoms may arise, as with hay-fever. With some persons it comes on at certain days, or after certain intervals, varying more or less with the exciting causes. Sick-headache, like hay-fever, has a depressing effect on the mind and body.

7. It is correlated to other neuroses, and may act vicariously. When one becomes subject to attacks of sick-headache, other symptoms, as nervous dyspepsia, backache, and even other forms of neuralgia, frequently leave them. It seems to be a safety-valve for the system. When sick-headaches depart, sometimes other and far more serious symptoms appear.

A patient of mine, who had all his life, or for very many years, been a sufferer from sick-headaches, was attacked last year with palsy agitans in his right arm, and from that

time the headache vanished. The sudden cessation of sick-headache is sometimes followed in old age by hemiplegia. Conversely, a return to health from an attack of severe illness, acute or chronic, may be signalized by the reappearance of the suspended headaches. A patient who was referred to me by my friend Dr. Stone, of Philadelphia, and who had been treated by him with success for symptoms of spinal exhaustion, remarked to me, "I know I am better, for my sick-headaches have come back."

Sick-headaches do not always act thus vicariously, but they frequently do; certainly they are more or less inconsistent with any severe and long-standing disease of the nervous system.

The correlatives of sick-headache are very suggestive. A person who, as a child, between five and ten years of age has chorea, between fifteen and twenty has nervous dyspepsia; between twenty and fifty has sick-headache; after fifty suffers, it may be, from hypochondriasis, or some severe form of neuralgia, like tic douloureux or sciatica.

8. Formerly regarded as a disease of the stomach, liver, and digestive apparatus, it is now known to be a neurosis, a real neuralgia of the fifth pair, central in its origin and functional in its character.

The popular and professional mind was directed chiefly to the vomiting as the most obvious symptom, and to the close connection between the stomach and the disease, and inferred most erroneously that "biliousness," a running over of bile, or dyspepsia, was really the disease, and that the headache came from the stomach. It is now known that the nausea and vomiting are results as well as causes; that while indigestion may react on the nerves of the head, causing brain exhaustion, the nerves may also act on the stomach, producing all the symptoms of indigestion.

Similarly in the study of hay-fever men have looked

chiefly at the apparently inflammatory signs in the nasal passages, and have inferred that they were caused entirely by some external irritant, ignoring the manifold facts that very clearly show the relation of the disease to the nervous system.

The terms sick-headache and bilious-headache are not good terms, but they are less misleading than hay-fever and rose cold. If all forms of sick-headache were called coffee-headache or beer-headache, because a certain proportion of victims have their attacks brought on or made worse by taking coffee or beer, the misnomers would be no worse than are the terms hay-fever and rose cold as applied to a disease of which hay and roses are but two out of a very long series of exciting causes.

9. It was until recently regarded as unrelievable, but now, under the influence of remedies directed to the nervous system, as bromide of potassium, chloral, belladonna, guarana, caffeine, and electricity, the violence of the attacks can almost invariably be mitigated, and in some cases the symptoms may be aborted. Under the old treatment of calomel, jalap, etc., cases complicated with digestive disorder were relieved more or less, either by the direct action of these remedies on the liver and bowels, or by the counter-irritation or reflex irritation excited; but, as a rule, it was expected that each attack must take its course, and that any attempt to relieve or break it up must be useless.

Likewise it had been until lately supposed that hay-fever must have its course, that it was beyond palliation by human skill; that all the victim need do was, as in the case of sick-headache, to wait in patience for the storm to spend its fury; and whatever remedies were tried were directed mainly to the relief of local inflammation in the nasal passages. It is now known that the attacks can in the majority of cases be relieved decidedly by remedies directed to the nervous

system, such as quinine or arsenic ; and by removal at the critical period to the ocean, or to cool, elevated regions, it can be avoided entirely.

On the other hand, sick-headache differs from hay-fever in that it occurs at any season of the year, also in the greater frequency and the comparative shortness of its attacks. It differs also in the fact that it does not occur so early or so late in life usually as hay-fever ; children do not have it, and it is often outgrown in old age.

PATHOLOGY.

Functional nervous disorders do not usually add much to our knowledge of coarse pathology. The disturbances of the nerves that they represent are of a subtle if not of a merely molecular character, and only by their symptoms can they be studied. The exact morbid state of the central nervous system in sick-headache, for example, has never been determined.

It is believed that the sympathetic has something to do with sick-headache, but just what is not known. It may also participate in hay-fever ; but we have no proof as yet that it does, and with our present limited knowledge of the physiology of the sympathetic we can only conjecture.

A special sensitiveness of the nerves supplying the respiratory passages to heat and various irritants would appear to be in general the chief fact in hay-fever.

These special susceptibilities are not confined to the nerves of the respiratory passages ; other nerves, and the mind itself, exhibit the same strange idiosyncrasies. The nerve of vision, for example, has queer antipathies. Some can not bear the sight of certain animals ; and weak hysterical women do not monopolize these idiosyncrasies. It is said that a brave officer of the British navy never could bear the sight

of a cat. Some are specially shocked at the presence of bats, frogs, mice, or spiders.

James I. of England, it is stated, never could bear the sight of a drawn sword. This peculiarity is attributed to the fact that his mother, Mary, Queen of Scots, witnessed during her gestation the murder of Rizzio. In one sturdy young man the presence of a cat caused cold sweating and a desire to urinate. The blowing of horns and the playing of fiddles are believed to have the same effect. Cows, elephants, and turkeys are made angry by the sight of any thing red. The Duc d'Epemon fainted at the odor of a hare, and a lady of high degree was taken with nausea, faintness, and vomiting by the smell of vinegar. It is possible that certain personal antipathies may be explained on the same principle.

For me, as for many, it is impossible to go up a height with any comfort, and the idea of making an attempt to do any thing of the kind sometimes causes disagreeable sensations. I have observed still further that this susceptibility is to a degree dependent on my general health.

The susceptibilities of the nerve of hearing are well known. The noise of filing a saw is painfully disagreeable to very many. In my own case, treading on a corn-cob or on a rubber mat, or even the thought of it, gives instantly a disagreeable feeling in my teeth.

Tissot says that one man was made epileptic by music; the sound of water going through a pipe threw Bayle into convulsions.

The sense of touch likewise has its idiosyncrasies. The skin of a peach is to me always disagreeable, especially when applied to the teeth, and even the suggestion of it is unpleasant.

The idiosyncrasies of the digestive apparatus are well known and are very numerous. I knew a man, otherwise

healthy, to whom a single strawberry was poison. Some can not eat shell-fish or cherries, mushrooms or almonds. Buckwheat in some persons causes nettle-rash. Some can not eat mutton, honey, or sugar. - To some coffee is most pernicious; to others tea, and to many tobacco in any form. The varying and unaccountable susceptibilities to medicines every physician encounters, frequently to his great annoyance.

In many opium produces almost every symptom except sleep; now and then one can not be anæsthetized by even large doses of laughing-gas; some can not bear the condition of anæsthesia, however produced.

Digitalis acts badly with some. I have seen patients whom bromide of potassium kept awake. Cases of extreme susceptibility to electricity I have observed for years. There are those to whom the smallest dose of electrical treatment is practically poisonous; headache, backache, wakefulness, and exhaustion follow even the shortest applications with very mild currents; and long since I called attention to the fact that some constitutions can bear and be benefited by the galvanic current and not by the faradic, and *vice versa*. At one time I had under my care a young man who could bear faradization to almost any extent, but in whom the application of a very mild galvanic current at once caused pallor and faintness. Repeated trials showed that he never got over this idiosyncrasy. Quite recently I have had under my care a young lady who bears the galvanic current in frequent doses, and is very greatly helped thereby; but the faradic current, when tested with considerable care, made the symptoms, already bad, much worse.

UNITY OF THE EARLY, MIDDLE, AND LATER FORMS OF THE DISEASE.

I had not long been engaged in these investigations before I discovered the existence of what I have here called

the *middle form of hay-fever*, or *July cold*. I found that a number of my correspondents and patients were attacked about the middle of July, or some time during that month, and that in such cases the disease disappeared usually in August, on or before the time when the later form, or autumnal catarrh, appeared. In some cases the two coalesced ; in others the middle form was but a continuation of the earlier.

None of the previous writers on hay-fever, so far as I can learn, had made this observation. On this subject Dr. Wyman* remarks : "Between these two periods" (May and June, and August and September), "although I have made many inquiries, I can learn of no annually returning catarrh ; nor do I know of the first being prolonged into the period of the second." Farther on he remarks : "Those who have June cold are not subjects of autumnal catarrh. When June cold has existed, it has ceased on the appearance of the later disease."

The unity of the different forms of hay-fever, occurring early in the summer, in midsummer, or late in the fall, is proved by the following facts :

1. The symptoms in all three forms are the same in kind, differing, if at all, in degree only. The distinctive symptoms—the sneezing, itching, discharge from the nose and eyes, swelling and obstruction, cough and asthma, with the febrile state, nervousness, languor, debility, and depression—are experienced in the early and middle as well as in the later forms.

Hay-fever in England appears usually in May and June, and in rare cases continues as late as September ; but the symptoms are precisely the same in all the details as the symptoms of the later forms of the disease as it appears in this country, and to which Dr. Wyman has given the name "autumnal catarrh."

* Op. Cit., p. 118.

Judging from a limited number of cases, Dr. Wyman made out a differential diagnosis between the June catarrh of the Northern United States and autumnal catarrh, the essential points of which were that in the former disease the cough was not spasmodic, asthma was not common, and it was generally relieved at the sea-coast and in the mountains. The reply to these conclusions is found in the cases of the so-called June catarrh as detailed in this work.

In the early and middle forms, for obvious reasons, the paroxysms are likely to be brought on by different irritants, as the aroma of flowers or new-mown hay.

RELATIVE FREQUENCY OF COUGH AND ASTHMA IN THE
EARLY, MIDDLE, AND LATER FORMS.

An argument urged by Dr. Wyman in favor of the theory that the later form of hay-fever, or "autumnal catarrh," was a distinct disease from the early form, or "rose cold," was that the symptoms of cough and asthma are peculiar to the later form, rarely, if ever, appearing in the early form. That this conclusion was a mistaken one is made evident from the following statistics, taken at random from the cases that have been under my observation or have been reported to me :

Of 17 cases of the early form, or "rose cold," 4 had neither cough nor asthma ; 1 had only cough ; 5 had only asthma ; and 7 had both.

Of 13 cases of the middle form, or July cold, 1 had neither cough nor asthma ; 4 had only cough ; 1 had only asthma ; and 7 had both.

Of the entire 30 cases of the early and middle forms, 5, or *one sixth*, had neither cough nor asthma.

Of 55 cases of the later form, or "autumnal catarrh," 9, or less than one sixth, had neither cough nor asthma ; 8 had only cough ; 12 had only asthma ; and 26 had both.

Of the total of 85 cases of the early, middle, and later forms, 14, or *a little less than one sixth*, had neither cough nor asthma.

I have made this comparison a number of times, and with slightly varying results, always taking the cases at random. In one instance, when only a few cases were tabulated, it was found that about one third of the victims of the early form had neither cough nor asthma, while the proportion in the later form was about one sixth.

On the whole, it is probably safe to conclude that cough and asthma, though common to all forms of hay-fever, do not appear quite so uniformly in the early and middle forms as in the later form. The difference, however, is too slight to afford any reason for regarding the different forms as distinct diseases.

The very few cases of "rose cold" to which the attention of Dr. Wyman was called happened to be those that were not troubled with cough or asthma.

Cough, so far as it is a sequel of hay-fever—a result of inflammation—would be more likely to appear in the later than the early form, on account of the greater coolness of the autumnal weather.

Some of the cases of the early and middle forms are, as has been already noted, protracted into the autumn; but cough and asthma appear even when the attack terminates in July or August.

Comparing the different forms by the general test of *degree* of symptoms, it would seem that in this country the early and middle forms are on the whole milder than the later form; but the average difference is probably not very important. The June attacks are sometimes very mild indeed, and of short duration; but so also in some cases are the autumnal attacks, even when there is no treatment and no removal to an exempt region.

The premonitory symptoms do not appear to be observed in the early and middle forms so markedly or so frequently as in the later form. The debilitating influence of the "dog-days" might account for this difference; for, as is well known, the excessively hot spells of June and July are never so exhausting as the muggy season that usually sets in about the middle of August.

If the sufferers from the early and middle forms are less likely to be relieved by removal to the mountains, as is possibly the case, although the evidence on that point is not very full as yet, an explanation might be found in the fact that the grasses and flowers which in June and July act as exciting causes are found in those mountainous regions that are most frequently visited.

2. The early form runs into the middle form, and both the early and middle forms may run into the later. Some persons, both in this country and in England, are afflicted all or nearly all the time from May to September. Others, who during the first years have the early or middle form, subsequently have the later form.

One lady, aged thirty-five, has the autumnal catarrh, beginning August 19; she has also had the June cold. She is but one of a number of similar cases.

Mr. George W. Adams, of Brooklyn, had the early form, or rose cold, for eight years; a change of residence brought a change in the form of the disease, and he now has autumnal catarrh.

3. All forms are transmissible by inheritance, and all three varieties may appear in the same family. A parent who has the early form may have children some of whom have the early and some the later form. Chief Justice Shaw inherited the later form from his mother; one of his sons has the same form, while another son and a daughter have the early form or June cold.

In one family that I visited the mother had the early form, middle form, and later form, being liable from May to November. Her brother and her son had the later form only, her three daughters had the early or middle form only. Mrs. Wilde and sister had the later form; Mrs. Wilde's son had the early form in June, and her daughter the later form, like her mother.

4. They all occur in the same climates, and among the same races, and in the same temperaments. They all follow in the track of functional nervous diseases in general, which are found to be so prevalent in the northern part of the United States and in England. The same class of temperaments—the nervous, nervo-sanguine, and nervo-bilious; the same class of people—the so-called better class, the educated or finely organized—have the early and middle as well as the later forms of hay-fever. In England, where the later form as a distinct disease is unknown, although in some cases the symptoms may last all summer into the fall, it was observed long ago that professional, literary, and business men were more liable to hay-fever than mechanics or day-laborers. “I hear that certain distinguished persons have hay-fever,” writes Dr. Eliotson, as the disease was coming into fashion in England.

5. All are relieved by the same remedies—the air of mountains and the sea, the administration of quinine, iron, arsenic, and other tonics. The English sufferers from the early form of hay-fever find relief at the sea, as do their American brethren with the later form; mountain air has not been tried as fully for the early and middle as for the later form either in England or America, and for the reason that the disease appears at a time when it is difficult for the majority of people to leave their homes. In England and America vacations are taken in August and September mainly, and those who are attacked with hay-fever in May

and June usually rush to the nearest sea-side. Probably a residence in the mountains of Switzerland at that time would do as well; but in Europe it is not known that mountains are so beneficial to the disease, and few even of those who have the leisure resort to them.

WHY THE LATER FORM, OR "AUTUMNAL CATARRH," IS
PECULIAR TO THE UNITED STATES.

An interesting inquiry that may be properly raised at this point is why hay-fever in England occurs mostly in the spring and early summer, while in this country it may occur any time between May and November, but is most active and most severe in the months of August and September. Although, in occasional instances, the hay-fever of England may last from May to September, yet such cases are not common, and no one claims that it may extend beyond September.

In England the principal exciting causes are unquestionably grass and flowers, the pollen and aroma of which are most abundant in the early summer, and diminish or disappear later in the season. In the United States the more prominent exciting causes appear to be Roman wormwood and the pollen of corn, both of which flower about the middle of August, and both of which without doubt excite the paroxysms in some persons even when applied in the non-catarrhal regions of the mountains.* Other irritants, as cinders, dust, smoke, bright sunlight, gaslight, etc., are common to the whole summer season; but they are not sufficiently powerful to induce protracted attacks of the disease unless stronger vegetable irritants start the malady, and co-operate with them in maintaining it. Roman wormwood

* Dr. Wyman made experiments with Roman wormwood in the White Mountain region. The symptoms of itching, sneezing, coughing, and asthma were produced, but they soon passed away.

and Indian corn are found in nearly all parts of the United States east of the Rocky Mountains; they are not found in England, France, or Germany.

Another cause of the prevalence of hay-fever in America in August and September is the depressing influence of what are called "dog-days." Almost all persons of susceptible organizations, whether hay-fever subjects or not, experience during the middle and latter part of August an indefinable but very positive sense of lassitude and exhaustion: appetite ceases; sleep is disturbed and capricious; a vague sense of weakness of body and mind makes all severe exertion distasteful. Then is the time when, by the unanimous instinct of in-door workers, vacations are needed, and, if possible, are obtained. Whether this enervating influence of dog-day weather is the result of the previous heats of summer, or is due to a peculiarity in the atmosphere, or, as is most likely, to both causes, it is not necessary to argue. The one practical fact of observation and experience, that for health this season is the ebb-tide of the year, few will question. I have observed, for a number of years, that my nervous patients—those afflicted with nervous dyspepsia, neuralgia, hysteria, and hypochondriasis—are worse at this season than any other, and lose for the time some of the benefits of the treatment they receive; indeed, to treat cases of chronic nervous depression at this season is quite discouraging.

Experiments show that there is less atmospheric ozone and electricity at this period than at any other time in the year; and possibly there may be some relation between the deficiency in these agents and the nervous exhaustion which so many experience at this time.

In England and on the Continent the season corresponding to our dog-days is far less depressing than with us; the air is cooler or feels cooler, and the nerve-exhausting features are correspondingly less marked.

In the United States the hottest days are frequently in the latter part of June; but these heated terms of the early summer, although they are disagreeable, are never as depressing as the comparatively cooler days of mid-August and early September.

The third and fourth conclusions will be considered in detail in the chapter on prevention and treatment.

CHAPTER V.

SYMPTOMS AND COURSE.

BEFORE giving a systematic survey of the symptoms of hay-fever, it is necessary to repeat, what has been stated already, that no two cases are precisely alike. It is not going too far to say that cases of this disease differ as much as faces differ; with very many important features that are common, each one has features more or less peculiar to itself.

In the following description the leading symptoms are given as nearly as possible in the average order in which they appear in the early, the middle, and later forms of the disease.

Itching.—This is one of the first, oftentimes the very first local symptom of an attack. It is felt in the inner angles of the eyes, in the nose, in the upper and back part of the pharynx, and on the roof of the mouth and the neighboring parts, and in the Eustachian tube. The impulse is to press upon the inner angles of the eyes and rub the nose; and at first the symptom gives way a little under this treatment; but as the disease strengthens, rubbing aggravates as well as relieves, producing congestion, with redness and a feeling of roughness, as though sand were in the eye—an experience entirely familiar to all who have had attacks of common inflammation of the conjunctiva. This itching is not always confined to the above-mentioned parts; it may extend over the eye-ball and the eyelids, and in some cases over distant parts of the body, where it may be attended by an eruption

resembling nettle-rash, prurigo, or eczema. In the eyes, nose, and vicinity, the itching belongs to the first or early stages; on the skin in distant portions of the body it may appear during the last stage. The temptation to rub and scratch is sometimes so great as to be uncontrollable; one sufferer declared that he was compelled to tie his hands before going to sleep to save his eyes. Relief of the itching in the mouth and pharynx is sought by swallowing, by rubbing the tongue against the palate, and by pressing against the ear.

Sneezing.—The symptom of itching just described is peculiar to hay-fever as distinguished from an ordinary cold in the head. The symptom next in order—sneezing—is common to both ordinary catarrh and hay-fever, but is much more violent and persistent in the latter. Sneezing is a reflex act, caused by irritation of the sensitive nerves of the nasal passages. This irritation may be produced by a limitless variety of causes, and may in some cases be checked in the same way that it is caused, by reflex influence; as, for example, by pressing firmly on the upper lip, or by vigorously grasping the nose. The irritation that gives rise to sneezing in acute or chronic catarrh is usually relieved by two or three explosions at most; it has come well-nigh to a proverb that the third sneeze conquers. With hay-fever it is not so, and even in chronic catarrh there are exceptions. In hay-fever the sneezes come not singly, but in a series, following each other in rapid succession. They are excited by a draught of air, by dust, by exposure to sunlight or to gaslight, to smoke, to the odor of flowers, to the emanations of hay or grass, or indeed to any one or to all of the many exciting causes of this malady. A change of position, a trivial disturbance of mind or body, may bring on at any moment a torrent of sneezes, which do not, like those of ordinary catarrh, yield to the process of compressing the nose or the upper lip.

Mr. Beecher, who writes out of the depths of personal ex-

perience, does not exaggerate when he says: "You never before even suspected what it really was to sneeze. If the door is open, you sneeze. If a pane of glass is gone, you sneeze. If you look into the sunshine, you sneeze. . . . If you sneeze once, you sneeze twenty times. It is riot of sneezes. First a single one, like a leader in a flock of sheep, bolts over; and then, in spite of all you can do, the whole flock, fifty by count, come dashing over—in twos, in fives, in bunches of twenty."*

The sneezing is more violent, or at least more noticeable, in the first stage, but continues as long as the nasal passages are affected. Dr. William Wallace, of Brooklyn, a sufferer from this disease, says that one year, when it first came on, he sneezed five hours in succession.

Discharge from the Nose and Eyes.—The symptoms of itching and sneezing are attended or followed by profuse flow of tears and discharge from the nose. A common cold exhibits similar effects, but the secretion both from the eyes and nose is far less abundant. The discharge from the nose is at first like clear water; it has no color, and does not stain. On stooping and holding down the head this fluid flows out almost "like water from a pitcher." Several handkerchiefs are needed daily; in some cases as many as twenty or thirty are saturated in twenty-four hours. With the progress of the disease the discharge loses its clearness and becomes thicker. This discharge from the nose is not composed wholly of the

* Chronic rhinitis (chronic catarrh of the nose) may also be attended in rare instances by equally violent and protracted sneezing. From the introduction to my translation of Tobold's "Chronic Diseases of the Larynx," I make the following extract: "A lady patient of mine, who had suffered from severe and long-standing rhinitis, as well as pharyngitis, attended with very profuse discharge, said that on rising in the morning she was oftentimes seized with violent attacks of sneezing, that would not let her go until she was entirely exhausted. She said that it was not an unusual thing for her to sneeze forty or fifty times in succession." This lady subsequently recovered.

nasal secretion, for the tears from the irritated eyes are constantly flowing through the duct. When the duct becomes clogged the tears run down the cheeks.

Swelling and Obstruction of the Affected Parts.—Constant irritation soon leads to enlargement of the vessels of the eyes, nose, and pharynx. The lining membrane of the eye becomes red and swollen; the eyelids feel thick and heavy; the edges become inflamed; the secretion of the glands is increased, and in the morning the lids are sometimes adherent. The feeling as though sand or dust were in the eye is quite common, and attempts to open the lids may cause great distress. The nostrils also become obstructed, at first temporarily, during the paroxysms, and later permanently. Sometimes they are shut up entirely, and the sufferer is forced to breathe through the nasal passages. The nose itself at this stage has a red, angry, somewhat sore and swollen look, its lining membrane being congested and thickened. At this stage, also, the senses of smell and of taste are diminished, if not entirely obliterated; the most pungent odors make no impression, and in the mouth all substances taste about alike. In the later stages symptoms of ulceration in the nasal passages sometimes arise, and the discharge becomes bloody, as in some forms of chronic catarrh. On the skin of the nose and face pimples arise; and little ulcers—"cold sores"—appear on the upper lip. These phenomena are the result, in part, of the sensitive condition of the skin, which sensitiveness appears to be an accompaniment of the disease, and in part to the result of the irritation of the secretions. According to Dr. Wyman, the skin is easily chafed, and the chafed spots do not readily dry up, but for some days pour forth serum; and on healing the red skin keeps tender and is easily abraded. The whole face may become red and swollen, particularly in the morning. In the mouth and pharynx the uvula becomes swollen

and lengthened, the velum palati thickened, the tonsils enlarged. The mucous membrane of all these parts has on inspection the color of raw beef; there is redness, swelling, and enlargement of the glands. Difficulty of swallowing results from this thickening of the parts; the tongue and the whole throat feels stiff and dry; the secretion is thick and tenacious, and constant attempts to dislodge the masses of adherent matter are made.

In the naso-pharyngeal space, where the Eustachian tubes open, the same state of things exists. These tubes are liable also to become closed, or partly so, and as a consequence there is more or less deafness, with ringing in the ears. The congestion may sometimes extend into the middle ear, giving a disagreeable sense of fullness, and even the external ear may become irritated and give rise to a thin discharge.

Pain in the Affected Parts.—Photophobia, or intolerance of light, is a symptom very frequently found in the early and middle stages of this disorder. The glare of ordinary diffused sunlight or of gaslight causes torture, and only in a dark room can comfort be found. In milder cases there is less intolerance of light; but long writing or reading causes pain. Many, however, are not afflicted in this way to a degree sufficient to interfere with their ordinary duties.

Tension, pain, and heaviness in the forehead, just over the frontal sinus, are quite common. In one of my cases this was the first symptom of the disease. Headache may be added to the other annoyances during these stages, with a sense of cerebral fullness and congestion, arising mainly from the obstruction of the sinuses, the nasal passages, and the congestion in the middle ear. "Hot feeling in the throat" was one of the symptoms in a case of the early form of hay-fever. Victims of maladies of this kind do not begin to suffer from pain like those who have severe toothache, tic douloureux, or sciatica; but for the time their state seems

to be helpless and hopeless. They are prisoners bound hand and foot, and can only be released at the option of their cruel tormentor.

Cough and Asthma.—The great majority (four fifths) of hay-fever patients suffer from cough or asthma, or from both. These symptoms, however, belong usually to the second and third stages, although to this rule there are exceptions. The asthma may come on with the nasal disturbance. The course of the affection appears to be downward, from the eyes and nose through the mouth, pharynx, to the bronchial tubes. The vocal chords and larynx proper are usually passed by.

The hay-fever cough is sometimes mild, sometimes severe; quite often coming on in furious and distressing paroxysms, making sleep impossible, and compelling the sufferer to sit upright. The cough is not at first accompanied with much expectoration, excepting in the later stages. The expectorated matter is of a starch-like character, green or yellowish in color; it may resemble jelly, and is occasionally somewhat bloody; when expelled there is temporary relief. Coughing is attended in some cases with muscular soreness and pain.

A tickling sensation at first calls forth the cough. This tickling grows worse and worse, and a feeling of soreness in the throat and in the breast arises. These painful sensations are usually worse in the morning. Whistling or wheezing sometimes accompany the cough.

The cough as well as the asthma may be protracted for weeks and months after the other symptoms of hay-fever have disappeared.

The asthma belongs usually, though not always, to the later stages, accompanying or following the cough. In its essential features it does not differ from ordinary asthma. With some it is the leading and most distressing symptom,

interfering with sleep sometimes for many nights in succession. Whatever agents excite the disease in general—pollen or hay or flowers or the odor of animals—give rise to paroxysms of asthma.

The attacks of asthma are sometimes immediately preceded by discharge from the eyes and nose, and are sometimes attended with retching and vomiting. The attacks are sometimes periodic, coming on when first getting into bed, or at a certain hour each night. The sufferer is sometimes obliged to sit up in bed, or rush to the open window, as in ordinary uncomplicated asthma.

Percussion and auscultation give evidence of ordinary bronchitis, and no more. Some seasons individual sufferers are free from both the cough and asthma, all the other symptoms appearing as usual.

Constitutional Symptoms.—The local symptoms are accompanied by various general or constitutional symptoms of a most interesting and suggestive character. All of them point to the nervous system as the real seat of the malady. In the *premonitory* stage, which is noticed by a proportion of the cases, the appetite and digestion may be weakened, the sleep disturbed, uncertain, and broken by bad dreams. These symptoms may appear several days, or for a week or two, before the attack. Only a certain proportion of the cases observe this premonitory stage. During the attack there may be palpitation of the heart, or rapid and enfeebled, and sometimes intermittent pulse. The sounds of the heart may be more abrupt than is normal. Chilliness is a very common symptom. The subject seeks for warm fires, and needs a good supply of warm clothing. In other cases there is sweating, which in the later stages may be profuse. On the head there may be a feeling of constriction, as though a band were around it. On awaking during the night there is with some an indefinable nerv-

ous sensation, that makes it almost impossible to keep still, a sort of fidgetyness that seeks relief by getting up and walking about. The general muscular strength is with some diminished; there is shortness of breath and exhaustion in rapid walking or ascending heights. Loss of flesh sometimes follows.

In these general disturbances the skin shares in a most interesting way. The surface may be clammy and moist, as is observed so often in debilitated states of the body; the glands of the armpit sometimes enlarge, and in the later stages abrasions appear. On the eyelids sties form, and pimples break out on other parts of the body; these pimples, when scratched, exude a serum, and on drying a scale appears. The lips become dry and cracked. Itching of the scalp, shoulder-blade, spine, and breast, without redness or pimples—a simple prurigo or pruritus—may cause terrible annoyance in the early or later stages.

The mental symptoms are irritability, fretfulness, and a disposition to be unusually annoyed by trifles.

One man was so badly dyspeptic one year that nothing would stay on his stomach except oysters.

There is in some cases considerable febrile disturbance, especially in the latter part of the day; the pulse may rise to one hundred or more. At the same time there may be pain in the back, and a general feeling of heat through the system.

The terror of hay-fever does not, however, consist so much in any one symptom or group of symptoms, or in the positive well-defined pain in any part, as in the general feeling of indefinite but infinite misery with which the special symptoms are accompanied. The same remark will apply to sick-headache and seasickness.

Characteristics of the Attacks.—The prominent local symptoms above described are marked by three suggestive characteristics:

First. The suddenness of their onset. In many cases itching or sneezing or asthma may come on almost instantaneously, with or without apparent exciting causes. With some the attacks always, or almost always, so to speak, swoop upon them without any preliminary or warning signs whatsoever. This is not always true, for, as Daniel Webster said of his own case, "It may come like a thief in the night, or it may be as bold as a lion." That it is true of any considerable number of cases in certain seasons is a fact of great significance.

Secondly. Their paroxysmal character. The itching, the sneezing, the cough, and the asthma appear in paroxysms that are brief, though most distressing. A little active exercise, a short walk or moving about the room, or any thing that excites the circulation and brings warmth to the surface, affords quick relief. The itching or sneezing cease, the sense of fullness and obstruction is no longer felt; the patient is as well as before. The profuse discharge from the eyes and nose that accompany the sneezing also stops as suddenly as it comes, sometimes almost instantaneously.

These paroxysms occur at first in the morning mostly, for the reason that at this time the nasal passages and the eyes are liable to be loaded with secretions, and the position of the body is changed from a prone to an upright position, and from a state of warmth to a state of exposure. As the disease advances, the paroxysms appear at any time of the day, although with the majority there are certain times when they are at their worst. Some believe that they are worse on alternate days. In some cases the paroxysms appear in the evening. In some cases they are quite irregular in their appearance. In the paroxysm of itching, rubbing the eyes produces dilatation of the vessels and redness; relief, however, is afforded, and in the course of a few minutes or half an hour the eyes are as well as before.

The paroxysms of asthma occur usually at night—at least are most distressing at night—but may be brought on at any time of the day under exposure to special irritants.

Thirdly. Definite stages with remissions. The disease has four stages—the *premonitory*, the *catarrhal*, the *bronchial*, and the *spasmodic*. The premonitory stage is observed only in a proportion of the cases, but in sufficient number to make it a part of the disease. In the catarrhal stage the eyes, nose, ears, and throat are chiefly affected, and there is profuse discharge. In the bronchial stage there is cough with expectoration. In the spasmodic stage the cough assumes a spasmodic form, and spasmodic asthma sets in. These stages, it is needless to say, are not mathematically defined; they run into each other, and in some cases are, so to speak, dovetailed together. The first stage is extended to the second, and the peculiarities of the second may be felt both in the first and the last. Nearly all the prominent symptoms—itching, sneezing, discharge, cough, and asthma—may, under exciting causes, suddenly burst like a storm on the patient. On the average it may be said that the first stage continues a week or ten days; the second stage about the same time; the third stage from two weeks to several months—but usually about two weeks. During all the stages there may arise remissions in the disease, when the symptoms seem to be passing away; the patient flatters himself that his enemy has left for good, but soon finds that he has merely been lurking in ambush, and soon reappears, more terrible, perhaps, than before. These remissions are not, however, observed in all cases; but when they occur they are usually spontaneous, having little or no relation to the treatment.

The manner of termination varies with individuals and with the season; it may be sudden or gradual. If the weather suddenly becomes cold, the sufferer may wake up in the

morning and find himself well; or there may be a gradual decline in the severity of the symptoms—longer and more frequent remissions—until all traces of the disorder disappear.

Usually the affected parts are left in as healthy a condition as before the attack. In some cases, however, the mucous membrane appears to become thickened—a sort of chronic bronchitis supervenes.

Circumstances of First Attack.—The histories of the first attacks of the disease are not full or numerous; but, so far as they go, are interesting. Those whose attacks began in infancy, or in early childhood, can not judge of the conditions under which the earliest symptoms appeared, or the manner of their appearance. In cases where the subjects have carefully observed, overwork, overworry, prolonged exposure to any one or several of the exciting causes seem to have immediately preceded the first symptoms. The cases in which the first attack was excited partly by mental influences, reading, talking, and thinking of the disease, are not numerous, but sufficiently authentic and detailed to command consideration.

One correspondent writes as follows: "Think my first attack was occasioned by being exposed several days to excessive *dust* at New York State Fair, Albany, 1851. Also took a heavy cold at that time, or supposed I did, by going while heated to the house-top, and standing in the wind to see a balloon ascend."

A gentleman from Bloomington, Illinois, thinks he was overworried at the time of the first attack. On his mother's side there has been hay-fever. The paroxysms are most frequently excited by a sudden chill. He has been much relieved by vapor-baths. These baths are tried early in the spring, before the season of the attack. The result is that for four years he has been troubled very little, excepting a

dozen or so sneezes every morning and evening in the spring and about the middle of September.

In two cases that have been brought to my notice in Brooklyn, the attacks seem to have been excited by exposure to malarial influences; the causes which usually give rise to chills and fever in these cases excited hay-fever.

A lady was sunstruck the June before the first attack, and in the preceding April had lost her husband. Sunstroke, as is well known, often has the effect to produce symptoms of a nervously exhausted or hysterical character.*

One correspondent, a physician, states that his trouble first showed itself in June, following an attack of gastric fever.

My friend, Dr. Talson, of West Hoboken, tells me of a lady who has the hay-fever, and in whom the first attack came on during the season when strawberries flower.

One lady was troubled with attacks of sneezing at her monthly periods, before and after the hay-fever attacks; and in this same lady the disease first came on at the change of life.

Dr. Gibbons, of California, speaks of a case that occurred in the southern part of New Jersey. A gentleman was drying sumach for the use of dyers on the 23d of August. He was suddenly attacked with violent and incessant sneezing. He sneezed day and night. The water ran from his nostrils almost in a stream. In four or five weeks he had become much weakened, and lost much flesh. The following year, on the same day of the month, the disease came again. He removed to Philadelphia, and the disease followed him.

In cases of this kind we may suppose a certain amount of predisposition to exist, not sufficient, however, to respond, in the first instance, to heat alone or to the majority of vegetable irritants; but when once the habit is started by any ir-

* A number of cases of this character are detailed in the second edition of Beard and Rockwell's "Medical and Surgical Electricity."

ritant that acts with specific power on the individual, the attack may recur each year, even when the exposure is not repeated.

Dr. Bastian, of London, was attacked with hay-fever symptoms while dissecting the parasite of a horse; the attack continued like an ordinary attack of hay-fever as it appears in England.

In many cases, however, paroxysms accidentally brought on in this way in those not previously subject to hay-fever disappear in the course of a few hours, and are forgotten. Several cases of that kind have been reported to me both by physicians and laymen.

Among others, my friend Dr. Satterthwaite, of New York, tells me that once while mowing a certain kind of grass sneezing and discharge came on; he left and cleansed the nasal passages, and was relieved. The next day he again entered the grass, and was attacked as before; but no permanent trouble followed. The number of similar cases is, I believe, quite large.

Permanent or After Effects.—The permanent effects of these attacks are not at all as serious as might perhaps be expected from the severity of the symptoms during the height of the disease.

If the malady were of a purely inflammatory character, one would suppose that successive attacks would result in a chronic catarrh of the parts. Chronic catarrh of the nasal passages, the naso-pharyngeal space, and the pharynx is the result of frequent and severe inflammation of the same parts. Some of the symptoms of chronic catarrh of these parts do result from hay-fever; the mucous membrane may become thickened; and in one prominent case there was, I am informed, at one time *œzena*, or catarrh with offensive discharge, which might perhaps have been an accompaniment, and not a result. But these results, in the few

cases where they appear, are not proportioned to the violence of the acute attacks.

In exceptional cases, also, the mucous membrane of the bronchial tubes seems to suffer from chronic inflammation long after the hay-fever proper has passed away; and hence are explained the coughs which sometimes last all winter into the spring; but such cases are not common.

Hay-fever usually leaves the mucous membrane in as healthy a condition as it found it, and successive attacks of perhaps increasing violence through a long lifetime do not often work any permanent evil on any of the parts that suffer during the attacks. This fact alone is a strong point in favor of the nerve theory of the disease; for in all regions of the body, and in all the tissues, frequent acute inflammations produce chronic inflammations with structural changes. In this way it is that many of the severe and incurable diseases of the spinal cord resulting in paralysis are brought about. Strictures of the urethra, chronic inflammations of the kidneys, have a similar origin.

It would seem from the replies to my query on that subject—and my observation confirms this view—that hay-fever subjects are, on the whole, less liable to chronic catarrh than others in the same class of society; certainly they are not more liable. In some cases, however, the two diseases exist independently.

In this disproportion between the violence and frequency of the attacks, and the mildness or absence of the after-effects, hay-fever follows the analogy of sick-headache. When we see a friend in the agonies of this form of neuralgia, with excruciating pain in the side of the head and in the back of the neck, dizzy, and half blinded it may be, vomiting at times and nauseated constantly—and when we learn that visitations fully as violent as this are made perhaps several times monthly, year after year, we naturally expect that soft-

ening of the brain or some terrible malady must follow, and that the whole system must break down. But this very sufferer, though liable to these attacks for a good portion of his life, may escape every serious form of disease, and outlive by many years those who sympathize with and fear for him.

CHAPTER VI.

DIAGNOSIS AND PROGNOSIS.

THE only diseases with which hay-fever can be well confounded are a *common cold*, *ordinary asthma*, and *acute bronchitis*.

Hay-fever in any of its forms—early, middle, or later—differs from a common cold in the following particulars :

1. In the nervous character of many of the symptoms. Some of the features that are of a nervous character do not appear at all in a common cold. Among them are to be mentioned the itching of the eyes, nose, and pharynx, and the paroxysmal character of the symptoms. Again, an acute coryza, or cold in the head, rarely if ever comes on instantaneously ; it is always preceded either by symptoms of a general cold or by chilliness, or by gradually increasing stuffiness of the nostrils. A common cold in the head, whatever be the method of treatment, is always gradual in its disappearance—so to speak, it wears away. Still further, the præmonitory symptoms of exhaustion, sleeplessness, bad dreams, etc., that sometimes precede hay-fever by several days, are never observed in a common cold.

2. In the greater severity of the symptoms. The symptoms which are common to a cold in the head and to hay-fever are much more severe in the latter. The lachrymation is more abundant, and the discharge from the nostrils more profuse ; the sneezing is severer and more prolonged ; there is a deeper redness of the conjunctiva, which is especially increased during the paroxysms.

3. Hay-fever is periodical, beginning usually in the warm season, while a common cold in the head comes on accidentally at any time, but especially in the cold season.

This periodicity of hay-fever in the warm season is sufficient of itself to make the diagnosis clear after two or three years. In the first attack there is always a doubt, which may not be settled until the following year. During the first attack the severity and obstinacy of the symptoms and the season of the year are the chief causes that excite the suspicion of hay-fever. Those whose first attacks are in infancy or early childhood may not suspect the real nature of their disorder until they arrive at maturity.

Half a century and more ago, when hay-fever was very rare, and its existence was not suspected either by the profession or the laity, some of the sufferers from this affection were supposed to be specially liable to take cold. In such cases the diagnosis may not have been made for many years. At the present time very few have the disease more than two years without in some way learning of its character, the element of periodicity alone usually being sufficient to excite a suspicion that the malady is something more than an ordinary cold in the head.

4. Hay-fever is aggravated by very many causes, as dust, etc., that do not affect a common cold.

Persons suffering from a cold in the head do not usually complain of dust or cinders or bright sunlight, although they may be affected by draughts of air.

5. Hay-fever is less susceptible to medical measures than a common cold, and the attack is usually more prolonged.

The usual treatment for a cold in the head—as a dose of opium or Dover's Powder, or any thing that excites perspiration, and which treatment, if taken sufficiently early, may break it up entirely—has comparatively little effect in hay-fever.

6. A common cold is not, like hay-fever, at once relieved by a change of residence to the sea or mountains, and is aggravated rather than improved by a cold atmosphere.

From ordinary asthma hay-fever is distinguished by the nasal and other symptoms that complicate it, and by its more definite periodicity.

If there are any exceptions to this rule, they would be found in the cases of coryza complicating asthma, observed by Trousseau, and previously referred to.

In many features hay-fever and ordinary asthma are, as we have seen, identical, the former being simply a complex periodic and special form of the latter.

Mr. Blackley, speaking of the hay-fever of England, says that the asthma differs from ordinary asthma in two respects: first, in that in the former the first attack usually comes on in the daytime; and, secondly, in hay-asthma the remissions of the disease are less decided.

These distinctions would hardly apply to hay-asthma as it appears in this country, or at least not with sufficient force to aid in the diagnosis. In both forms of asthma, the ordinary form and that associated with hay-fever, there may be positive remissions.

From acute bronchitis or inflammation of the bronchial tubes hay-fever is distinguished by the facts that in the former disease there is greater and more constant fever, and more evidences of inflammation, mucous râles, less furious and persistent sneezing, no asthma, no itching of eyes, nose, and throat, no sensitiveness to dust or vegetable irritants, and it is not periodic.

Practically there is at the present time, with the generally diffused knowledge of hay-fever, little danger of long confounding it with a common cold, or with ordinary uncomplicated asthma, or with bronchitis.

I have been surprised to find how few mistakes in diagno-

ses have been made by my many correspondents, and among those who have consulted me. One man, a miner, with chronic bronchitis, came some distance to see me, on the supposition that he had hay-fever. One of my correspondents, who filled out the replies to the questions in the circular, evidently had nothing but frequent attacks of common catarrh. I rode two miles one day with a country practitioner to see, as he suspected, a case of hay-fever, which proved to be only ordinary asthma. These are the only positive mistakes in diagnoses that have come under my observation during all my inquiries on the subject.

Prognosis.—In regard to the prognosis of the disease, these three facts are established: That when once a person is attacked, he only rarely escapes any subsequent year; that the disease varies much in severity in different years and periods of life; that it is not inconsistent with great longevity.

After it once appears, hay-fever is a life-long heritage. Even the change in the constitution that comes with extreme age is no protection. It is quite rare for the symptoms to skip a year, provided the subject remains in the same locality and under the same influences. Absolute immunity is only obtained at the price of temporary exile at that critical period to the mountains or sea, or to a cooler climate, or to some region where the heat and vegetable irritants which act as exciting causes do not exist.

Variations in the Severity of the Disease.—It has been thought that the earliest form of hay-fever as it appears in England diminishes in severity in the decline of life; some of the symptoms, especially those of the throat and eyes, disappear entirely.

Whether this be true or not in England, it certainly is not true in the United States. In respect to the increase or decrease of severity of the symptoms with advancing years, there would appear to be no constant law. In some cases

the disease grows milder with years, in others severer; in others still, years of comparative mildness alternate with years of comparative severity. That the early form may in time change into the later form has already been stated.

All these variations are fully consistent with the theory of the disease as here advocated. Not only will the sensitiveness of the subjects vary in different years, but the conditions of temperature, and the quantity and quality of irritants in the air, will never be precisely similar from one season to another.

While there is no proof as yet that hay-fever is generally milder or severer in certain years all over the world or over the country, there is yet satisfactory evidence that in limited localities it varies greatly in different years. Some seasons all the sufferers in a certain city or county will show the symptoms gently; in other seasons the same sufferers in the same locality will all be sorely afflicted.

Now and then, but not often, the tendency to the disease seems to be outgrown.

Mr. James B. Williams had an elder sister who had "June cold," and got well of it. In another case the disease skipped two years.

Mr. Waters, of Salem, Mass., says that his mother had rose cold, which left her in old age.

Dr. Gibbons, of California, mentions a terrible case, in which the attacks in successive years became lighter and lighter, and finally disappeared entirely.

Whether or not hay-fever, on the average, has grown more severe with the increase in the number of victims, it is hard to decide. It is clear that it has not grown milder; and, from the piteous complaints of the victims as compared with the calmer accounts of the first-discovered cases, we might fairly judge that on the average hay-fever in 1876 is a more terrible disease than hay-fever in 1800.

By theoretical reasoning alone one might reach this conclusion, for during this period other and allied functional nervous diseases have certainly waxed more disagreeable as well as more frequent.

EFFECT OF HAY-FEVER ON LONGEVITY.

Life is rarely, if ever, shortened by hay-fever. Those who are destined to live long will do so despite of these annual visitations, however terrible they may be. On the contrary, it is probable, judging from analogy and from observation, that this affliction, like sick-headache, acts as a kind of safety-valve for the nervous diathesis, prevents other and more serious disorders, and thus becomes the friend rather than the enemy of life.

Dr. Wyman contends most justly that the liability to hay-fever should be absolutely no bar to life-insurance. It is likely that a life-insurance company, confined entirely to hay-fever subjects, might prosper, provided business were sufficient, on the ordinary rates for the perfectly healthy.

Among the sufferers from this disease, the following instances of longevity are noted by Dr. Wyman. Daniel Webster, for twenty years a victim, died at seventy. Chief Justice Shaw died at eighty; another gentleman at eighty-four. Samuel Batchelder, eighty-seven years of age (in 1872), had been for many years a sufferer. These persons were all afflicted with the later form of hay-fever, or autumnal catarrh.

Dr. James Wilde, of Duxbury, Mass., knew a lady who died at the age of eighty-two, who had suffered for over half a century; and a patient of the same physician, aged eighty, had been afflicted sixty-six years.

One patient is reported to be eighty-eight years of age, and another ninety-one.

CHAPTER VII.

PREVENTION AND TREATMENT.

IN regard to the prevention and treatment of the different forms of hay-fever, there have prevailed among the people and the profession three serious errors, which should as rapidly as possible be corrected.

First. That nothing can be done to prevent the attacks, but that they must be met and endured every year, so long as the sufferer lives—in other words, that death is the only cure.

Secondly. That all medical treatment during the attack is useless, or worse than useless, no means of relief having yet been discovered.

Thirdly. That some specific may yet be found that will prevent or relieve all cases.

The first of these errors has been already to a considerable extent corrected. It is now quite generally known among those who are regularly visited by this malady that on the mountains and at sea relief is obtainable for those who are able to leave home during the catarrhal season.

In England, the custom of fleeing to the sea-shore has been observed for many years, and is well understood by subjects of the early form of the disease, the only form that prevails in that country. In the United States, the sufferers from June cold are also getting to understand the same fact.

The second and third errors I shall endeavor to correct in the present chapter, and also to place the climatology of

hay-fever on a scientific foundation, so far as is possible with our present knowledge of the subject.

There are few if any maladies that can be so quickly and successfully relieved by a comparatively slight change of residence as hay-fever. Malaria, once in the system, goes with it every where, and may not be driven out by long travel or in a long life ; but hay-fever, however violent, is often suppressed by a few hours of ocean or mountain or even sea-side air. This is a most important and redeeming feature in this annoying disorder.

For those who are forced to stay at home the means of relief are numerous, and in quite a large proportion of cases more or less successful. I have been surprised at the results of my observations and experiments in this direction. When we consider that the disease is of recent origin, that formal efforts to explore its mysteries or relieve its miseries have been made by only a few physicians in any country, there is cause for congratulation on what has been accomplished, as well as great hopefulness for the future.

Very many, if not the majority, of attempts to treat hay-fever thus far have been made on the false theory that it is an inflammatory disease of a specific character ; consequently those remedies have been largely tried which are supposed to quiet inflammation, or to have the power to kill parasites or germs.

Those who give even a qualified acceptance to the theory of hay-fever that is taught in this book, and enforced by the large number of cases here recorded, must see that all experiments based on any purely inflammatory, specific theory of the disease must be in precisely the wrong direction, and would be successful only by accident or coincidence.

More recently tonics and sedatives have been used in hay-fever, on empirical grounds mostly, or sometimes in sheer desperation, or on the theory that the affection was in

some way related to malarial fevers ; and whatever advance has been made in the relief of the harassing symptoms of this disorder has been due to this class of experiments. It is just to suppose that hereafter more systematic and more intelligent experiments, made under the guidance of a better knowledge of the nature of the disease, and with the positive and negative assistance derived from all past experience, may produce even more satisfactory results. This belief is justified by the great and comforting progress that has been made during the past decade in the relief of chronic functional nervous diseases in general, by means of hypodermic injections, the scientific use of cold and heat and electricity, by the administration of ergot, arsenic, phosphorus, nitrite of amyl, bromide of potassium, hydrate of chloral, digitalis, caffeine, and by a more judicious hygiene.

It follows, however, from the facts of the disease as thus far developed, that no specific of universal application will ever be found for it. As long as hay-fever was suspected to be caused by some germ or parasite which appeared at certain periods of the year and in certain localities, so long there was hope of finding some single specific antidote which would kill the germ or parasite, and thus in all cases relieve the symptoms. It is known that the disease that attacked the silkworms of France, and threatened the destruction of the vast interests of silk manufacture, was found to be of a specific origin, and was promptly and thoroughly arrested by the scientific commission sent to investigate it. It is known also that certain diseases of the skin are of parasitic origin, and in all cases, without regard to the predisposition of the victim, can be thoroughly eradicated by local specific applications. The hope has been widely entertained that diphtheria, measles, and other affections would be proved to have a similar specific character, and the advocates of the bacterial origin of the former disease have been quite nu-

merous ; but at present the strength of evidence seems to be against that theory. But whatever the fate of other diseases, the delusion that hay-fever, in any of its forms, is a specific disease, or will ever be cured by specific treatment, must be given up ; and the sooner the better ; for by this blind hope the progress of judicious experimenting has been retarded. The highest authorities in microscopy who have given this subject attention agree that the infusoria spoken of by Helmholtz are found in healthy as well as diseased mucous membranes, and the treatment by quinine solutions, although of value in many cases, is useless in others, and is as far as possible from being a specific. It is now proved, as well as any fact of this nature can be proved, that after the predisposition and the debilitating influence of heat, there are a very large number of irritating causes, mostly though not all of a vegetable character, and that different substances act differently with different individuals. To hope for a specific for a disease of this character is idle ; the search for it is wasted, save when it leads by chance to some remedy by which certain cases are helped.

But although there is no one specific for the disease, there are many partial or complete specifics for individuals. What the partial specific is for any given case can only be found out by trial. There is reason for the hope that those sufferers from any form of hay-fever who will carefully and faithfully try the remedies suggested in this chapter will find in nearly every case something of sufficient service to them to repay fully the time and labor given to the subject.

PREVENTION.

To prevent is always better than to cure. Hay-fever is best prevented by removal, at or before the season of the attack, to some region where the exciting causes do not exist. It is not necessary, as is supposed, to trust to

blind experience in this matter of change of residence; there are certain principles of general application by which every one may be wisely guided in the selection of a place of refuge. Remembering that the disease is excited by heat and irritants, relief ought to be and is found in those regions that are cool, and where the irritants do not abound. Remembering also that different individuals are differently affected by different irritants, it follows that all localities do not equally suit all cases, and that relief in any locality may be found in one season and not in another, which observation shows to be the case.

I give below the methods of preventing hay-fever by change of residence during the season of the attack in the order of their efficacy.

1. *Sea-voyage*.—Sea-air is tonic and sedative; in mid-ocean in high latitudes it is always cool, even in midsummer, and vegetable irritants are not found. Nothing is wanting theoretically to make a sea-voyage in high latitudes a perfect antidote for hay-fever—a specific for nearly every case. Experience confirms this theory, without, so far as I can learn, a single exception. Dr. Pirrie mentions a case of an Englishman who had the hay-fever while on a voyage to India; the details, however, are not satisfactorily given. It is conceivable that an attack might come on or continue even at sea in the tropics, for of the three factors that usually combine to produce the disease—predisposition, heat, and irritants—only two are necessary to produce the symptoms for a short time, provided one of them is the predisposition. A hay-fever subject, exposed to the tropical heat, may therefore experience something of an attack even in mid-ocean. The possibility also that animals or hay, or other substances on shipboard might act as irritants, should be considered. One of my correspondents speaks of “partial relief” having been obtained from a sea-voyage, but gives no details. The voyage

may have been too short, or it may have been in warm climates. It is therefore right to say that thus far there is no satisfactory account of any case of hay-fever that has endured during a long sea-voyage. This treatment may then be regarded as practically a specific for all cases, not because the sea-air itself has any specific action against the symptoms, but simply because it is tonic, is cool, and is free from all forms of vegetable irritants.

2. *Travel in Europe*.—A trip to Europe involves a week or ten days on the ocean, where the hay-fever never appears; but if the subject be already in Europe—in England or on the Continent—he will probably escape. The exceptions are rare. The victims of autumnal catarrh seem to be safe almost any where in Europe, although two of my correspondents had slight attacks in Paris. Mr. Beecher says that when in Europe, in 1863, he felt, on the 17th of August, the “peculiar, indescribable asthmatic taste. . . . I then had no more—it merely whispered in my ear, ‘I am here,’ and then left.”

Those who suffer somewhat while traveling about in France or Germany may readily find relief in Switzerland. Even the early form, or June cold, would probably fail to appear in most parts of Europe; but on this point the evidence is not very satisfactory. In England, where June cold is so prevalent, flowers and the grasses act as irritants; but they may act differently on American subjects; and, besides, the climate of England, as of the Continent, is quite different from that of the northern parts of the United States, and in other respects than temperature.

The practical conclusion is that those Americans who visit Europe during the season when they usually have the later form of hay-fever will in at least nine cases out of ten escape. Those Americans who reside abroad for a number of years will all that time be free from the annual visits of the malady; but will not escape the predisposition, and on their return

home will suffer as before. Besides the general and not entirely understood differences between the American and European climate, Indian corn and Roman wormwood, two important exciting causes of autumnal catarrh, are not found in Europe. On the whole, then, for American sufferers a residence in Europe as a preventive of hay-fever is next in efficacy to a sea-voyage. English sufferers find relief at the sea-side or on the ocean. It is probable that a residence in tropical regions in either hemisphere would prevent many cases, or at least modify the symptoms; but the testimony on this point is insufficient.

Those who have the middle form, or July cold, in this country, might not have it if they should visit England at the same time; for, as we have seen, every thing depends on the special susceptibility. Those who are susceptible to the climate and external irritants of this country in June and July might not be susceptible to the different climate and somewhat different vegetation of England.

3. *Regions that are Cool and Elevated.*—Elevation alone is not sufficient to insure exemption, and there is no definite line dividing catarrhal from non-catarrhal regions. Temperature and other factors, as the presence or absence of different forms of vegetation, and very likely atmospheric electricity and ozone, are to be considered; likewise also the elements of moisture and dryness, and the rarefaction of the air.

Temperature depends mainly on latitude; mountains of low elevation in high latitudes are more effective as resorts than mountains of greater elevation in low latitudes. Some of my correspondents residing in the Middle States do not find certain relief by visiting quite elevated localities. In any latitude, however, the temperature falls as we ascend, and if we go high enough we shall find the coolness sufficient to insure exemption from most cases of hay-fever. In determining differences of temperature the thermometer is not en-

tirely satisfactory. Dr. Wyman has pointed out that in the thermometrical indications in several summers there was but slight difference between the White Mountain region and Boston or Cambridge; and yet every man who has passed summers in the White Mountains knows that he suffers far less from heat than when at home in the latitude of Boston. There are few also who have not observed that from day to day during the summer the discomfort from heat is far from being always proportioned to the indications given by the thermometer.

Vegetation diminishes also with elevation, and above a few thousand feet, excepting the forest trees and some flowers, the vegetable irritants that excite hay-fever are mostly absent. It is, however, to be admitted that in many elevated regions, as Bethlehem, that are really non-catarrhal for the majority of sufferers from autumnal catarrh, vegetation of some kinds is abundant. In those portions surrounded by forests there is much less. Grass grows through all these and similar regions, wherever it has a chance, and flowers are not rare; hence it is, probably, that the early form of hay-fever is not so likely to be relieved by mountain residence. Elevated regions covered with primeval forest, like the Adirondacks, are good hay-fever resorts; they are comparatively free from many forms of vegetation, and are cool and invigorating. The electricity and ozone of the atmosphere increase with elevation up to a certain height,* and it may be that the tonic influence of mountain air is due in part to these agents. To differentiate these effects is, from the essential complexity of the subject, impossible. Both of these agents have stimulating, tonic, and sedative effects on the system; and it is not fanciful to suppose that when continually acting in larger than usual amounts they may tend to fortify the system against nervous disturbance in general, and in particular to

* Ozone is said to increase in amount from 2500 to 4000 feet.

diminish the excessive sensitiveness of nerves of the respiratory passages. The amount of electricity and ozone in the atmosphere diminishes during the spring and summer, reaches the lowest point in the latter part of August and September, and rises again during the autumn, reaching its maximum in midwinter. It is noteworthy that ozone and electricity are at their minimum in dog-days, when autumnal catarrh usually comes on. How far there is a relation of cause and effect in these facts can not be shown, for there appears to be a pretty close relation between temperature and the electricity and ozone of the atmosphere, both of these agents rising as the weather grows colder, and falling pretty regularly during the summer.* The more rarefied state of the air in elevated regions, and the consequent necessity of taking larger inspirations, is a factor not to be overlooked; on great elevations its influence is very great, and is quickly perceived; even at moderate elevations, as the White Mountain region, it may be all the time acting, although not readily noticed.

The powerful tonic and sedative influence of mountain air, which is noticed every where in all countries, and which shows itself by increased capacity for walking and climbing, and by improved sleep and digestion, is the resultant probably of the combined action of temperature, rarefied air, electricity, and ozone, and possibly conditions of moisture and dryness; and hay-fever subjects have the additional advantage of being there less exposed to vegetable irritants.

Persons who have passed much time among the mountains in the summer have observed that however hot it may be when exposed to the direct rays of the sun, it is much cooler

* Those who would look farther into this subject are referred to my paper on "Atmospheric Electricity and Ozone; their Relation to Health and Disease," in the *Popular Science Monthly* for February, 1874.

in the shade, and the difference in this respect is greater than at ordinary elevations. They have observed also that, when much fatigued and panting for breath with long climbing, a rest of but a moment or two suffices to refresh them so that they can continue their task. They may also have observed that articles in the house do not become mouldy, even in damp weather, to the same degree as in average elevations.

Professor Jeffries Wyman directed my attention to the fact that linen did not become soiled as quickly in the White Mountains as elsewhere.

There is need of careful study of mountain air by the aid of all modern appliances, and it is to be hoped that some qualified microscopist and chemist will act upon the suggestion here offered.*

We could not consistently expect that all hay-fever subjects would be always exempt in any mountainous region near this latitude; and we should expect that places that suit one do not another, and places that one year give entire relief, another year at the same season give little or none to the same person. These inconsistencies are really consistent with the laws of the disease. Seasons vary, vegetation varies, and patients vary widely in their special susceptibilities. Dust is abundant in the mountain roads at certain seasons, and those to whom dust of this kind is irritating might be liable to some of the symptoms. It has been proved by experiments and by the experience of various persons that exposure to irritants, as pollen of corn, Roman wormwood, roses and other flowers, may excite the symptoms and keep them up for a few hours in the mountains, just as a

* Those who would pursue this subject more thoroughly are recommended to read a most excellent paper on "The Effects of the Climate of Colorado on the Nervous System," by Dr. Denison, of Denver, Colorado. The paper was published originally in the *Archives of Electrology and Neurology* for November, 1874, and was republished by the author.

similar exposure does in the winter. Likewise very hot days in the mountains may induce certain symptoms.

A person who is but little helped at one stopping-place in the mountains may be utterly and instantaneously relieved at another place a few miles distant, whether the elevation be less or more ; and in this general fact there is no mystery, although it may be difficult to explain in detail the peculiarities of each case.

Time to Visit the Mountains.—Usually it is better to leave for the mountains before the symptoms of the attack appear ; and in the majority of cases a return home before the close of the catarrhal period brings on a return of the symptoms. To this general rule there are exceptions.

The case of one gentleman—Dr. Husted—was reported at the meeting of the United States Hay-Fever Association, at their meeting in 1875 ; it was stated that he annually visits the Twin Mountain House, stays there but one week, and then he can go back and resume his business.

In some cases a removal to the mountains or sea-side is of service for a time, but during the latter portion of the season is ineffective. Thus one gentleman found relief at once at Nantasket Beach for three or four weeks, but a longer stay did no good.

WHAT MOUNTAINS TO VISIT.

For a list of places of refuge the reader is referred to the replies to questions 44 and 48, pp. 72 and 73. No attempt is made to indicate by any map the exempt region, for there is no arbitrary limit of elevation or of latitude. The effects of visiting different mountainous regions vary with individuals as much as the effects of different irritants in exciting the symptoms. Uniform relief every year for all persons no mountainous region can afford. In this country, the mountainous regions that are at once the most accessible and the

most likely to relieve the largest number of cases are the following :

1. White Mountains, especially Bethlehem, Jefferson, Glen, and Twin Mountain House region.*

2. Adirondacks.

3. Summit of the Alleghanies.

4. Rocky Mountains.

5. Catskills.

The Catskills are quite accessible, but for the majority are far less reliable than the White Mountains.

Whitefield, New Hampshire, and Dodge's, two miles and a half from Whitefield, are recommended.

Cresson, a station on the Pennsylvania Railroad, on the

* In response to my inquiry, Frank B. Fay, Esq., Secretary of the United States Hay-Fever Association, writes as follows :

"1. Ragweed is almost entirely unknown in Bethlehem. I have never heard of but two or three spears being found. It is found at Littleton, five miles away ; several small patches also at Jefferson and at Gorham.

"2. Corn is raised at Bethlehem ; but I can not tell when it flowers, never having been there earlier than August 15.

"3. I know no reason why the Twin Mountain House is *superior* to Bethlehem, although I do not know that it is inferior.

"4. I like Bethlehem best, because it is open to east, west, and north winds, is almost entirely free from fogs, is sunny, and has a larger number of hotels and boarding-houses, and is convenient to various places of resort, so that one can visit them and return the same day. I have no interest to favor Bethlehem over other places, and should not like to say it is better than Jefferson or Twin Mountain or Crawford, in a sanitary point of view. I think it is superior to Littleton and Whitefield, and I prefer it to Gorham.

"5. I do not know or think that Bethlehem is deteriorating. Do not know that vegetation is increasing, except, as there is more demand throughout the mountains for green vegetables, the people would be likely to cultivate more ground.

"Last season at *every* mountain resort (Bethlehem included) there was more hay-fever than ever before. Something in the season, or prevailing winds or other reason, produced the symptoms, in almost every victim, to a greater degree than ever before, although, of course, only a fraction of what we should have had at home."

top of the Alleghany Mountains, has given relief. Oakland, on the same mountain, and Deer Park, six miles from Oakland, are reported favorably.

Fair Field Valley, North Carolina, has been of service in one instance.

Judge Goodrich, of Chicago, says that Canada is not exempt, but gives no particulars. It would be entirely reasonable to suppose that some portions of Canada might favor hay-fever; the summers there are sufficiently hot, and there is abundance of vegetation. The Canadians, however, are far less nervous than the Americans, and among the native population there would be less susceptibility.

Mrs. J. A. Emmons, of New Utrecht, New York, visited the Catskills and White Mountains without benefit. Only at sea can she find relief, and there it is immediate. She has visited Europe twice during the season of an attack, and had no return either in England or on the Continent.

A Baltimore gentleman was helped by visiting the mountains of Virginia and West Virginia.

Philip Reade, U. S. A., had all the symptoms at Fort Wingate.

In 1873 a pamphlet was issued under the indorsement of the Medical Association of Denver, Colorado, giving details of over one hundred cases of ordinary asthma and hay-fever that had been cured, or more or less benefited, by residence in or near that region. The Committee of Asthmatics, who represented the Asthma Association, state in their report that probably not one half or one quarter of those in Colorado responded to the call for information. They state, furthermore, that the amount of sunshine there is remarkable; from July, 1872, to December 29, 1873, there were but three days (excepting perhaps in June, 1873) when the sun was not seen.

Dr. Henry K. Steele, President of the Medical Association, in a brief report, states that "in the opinion of the

above medical association the climate of Colorado, in and about the range of the Rocky Mountains, has a wonderful curative power over asthma; that nearly all such patients coming into this climate are relieved—at least so long as they remain here; and that all, if not entirely relieved, are sooner or later benefited, with the exception of those cases dependent on or complicated with organic disease of the heart or lungs.”*

Among questions frequently asked are the altitudes above the sea-level of certain points in Colorado. The facts are not yet well settled, various observers differing considerably in their figures. The following are approximately correct:

	FEET.		FEET.
Denver.....	5,250	Hot Springs, in Middle Park	7,700
Golden.....	6,200	Boulder Pass.....	11,700
Central City.....	8,300	Berthoud Pass.....	11,020
Idaho.....	7,800	Argentine Pass.....	13,000
Georgetown.....	8,450	Brekinridge Pass.....	11,000
Caribou.....	9,200	Long's Peak.....	14,300
Boulder.....	5,550	Gray's Peak.....	14,251
Greeley.....	4,750	Mount Lincoln.....	14,190
Colorado City.....	6,350	Mount Harvard.....	14,260
Pueblo.....	4,400	Mount Yale.....	14,078
Trinidad.....	5,800	Pike's Peak.....	14,216
Tarryall.....	9,900	Summit of Divide, where	
Fairplay.....	10,000	the Rio Grande Railway	
Twin Lakes.....	9,000	crosses it.....	7,040

Dr. O. M. Bryan, of Colorado, writes: “I have known a few cases temporarily relieved by visiting Colorado. Persons suffering from hay-asthma are generally relieved soon

* The following are two of the cases: “Mr. Roth, Louisville, Kentucky; have had ‘hay-asthma’ for many years, and tried several localities; came to Denver last summer, and passed two months here and at Idaho, and escaped asthma entirely.”

“William Sechrist, Denver; Freeport, Illinois; twenty years ‘hay-asthma;’ never had it here, but it returns immediately on leaving Colorado; have traveled in the Lake Superior country and Minnesota without relief; here is the only place where I am well.”

after crossing the Missouri River. My opinion is that ninety-nine cases out of every one hundred would be relieved, or cured for the time being, by visiting the Rocky Mountains."

4. *The Sea-shore*.—Hay-fever, in all its forms and in all countries, is, in the majority of cases, relieved at the sea-side when the wind blows from the sea. When land-breezes blow the suffering may be as great as at any other place. The explanation is quickly found; the sea-breezes are cool and free from irritants; the land-breezes are likely to be warm, and are laden always with dust and the products of vegetation.

The sea-side can not, therefore, be regarded as exempt; the relief it gives is frequently but partial and uncertain. Even when the sea-breezes prevail the distress of the hay-fever sufferer may not be entirely mitigated; and there is always the consciousness that at any moment the wind may shift, and bring misery with it. The heat of the sea-side when the wind blows from the land or in calm is proverbial. I shall hardly live long enough to forget the intensity of suffering that I endured at Coney Island one hot day during the memorably hot summer of 1872. We had fled from the city in search of coolness, and found instead the combined heat of sun and sand. In the mountains no such experience is possible, for, though it be occasionally hot in midday, it is almost always cool in the morning, in the evening, and at night.

Islands at a long distance from land, and that have little vegetation, are much better than the ordinary sea-side resorts; but at the Isle of Shoals the symptoms are felt when the wind comes from the land nine miles away. Nantucket and Martha's Vineyard are not trustworthy for all cases, partly, I suppose, on account of the vegetation on them, and partly because they are too far south, and consequently too warm.

Whether the salt air is such, by virtue of the chemical

substances it contains, acts as an antidote to hay-fever beyond its sedative and tonic effects is doubtful. Probably a large fresh-water lake would answer nearly as well; but on this point there is need of more facts than have yet been gathered.

Fire Island is one of the best and most accessible of resorts of this kind; but it is too near the land, although, in many cases, it answers admirably.

5. *Cool Regions without regard to Elevation.*—Any victim of hay-fever who should at any stage of the disease travel due north would be sure to find relief, for the symptoms could not long survive the cold of Alaska, or of other regions in the same latitude. As we go north all the exciting causes of the disease disappear; warmth gives way to cold; vegetation becomes less and less luxuriant, and the districts north of Canada would be as exempt, it is safe to say, as mid-ocean. Practically, however, these regions are inaccessible and inhospitable, and have no attractions save for the sportsman. Canada is a favorite refuge for those who are not benefited by the White Mountains, although Canada itself is not entirely exempt. Halifax, N. S., and Eastport, Maine, gave relief to Mr. Waters, of Salem, Massachusetts, and to a number of other cases.

Several observers agree that relief is obtained at Mackinaw, Marquette, and other points in the Lake region, provided one goes before the attack comes on; but if the disease be already under way, several days or two weeks may elapse before it is cured.

6. *Large Cities.*—A certain proportion of cases are benefited by spending the season of their annual visitation in the centre of some large cities; but such relief is not usually complete. It is a mode of prevention on which little dependence can be placed; but those whose business compels or makes it possible for them to visit cities at such times, and

who can not go to the mountains or the sea, may now and then find their symptoms not a little alleviated.

Mr. Blackley found in his experiments in England that the air of cities contained a far less quantity of pollen than the air of the neighboring country ; and it is fair to infer that, in a measure, this is true of other vegetable irritants.

The greater heat of the city and the depressing influence of bad air are to be considered, since their tendency would be to make the system more sensitive. It is certain that the worst cases of hay-fever I have seen have been residents of large cities like New York, Boston, Philadelphia, and Brooklyn.

Manner in which the Symptoms are relieved in Exempt Regions.—The relief on visiting exempt places is sometimes immediate, sometimes gradual. If the disease be already upon the person in strong force, it may not entirely disappear for several days, or even for a week or two. The relief may be so absolute that the symptoms are not even suggested ; or partial only, certain symptoms occurring at certain hours of the day, or in the morning or evening, but not continuously, and incomparably less severe than in non-exempt regions.

On leaving the regions of exemption, and before the hay-fever season is over, the symptoms frequently return at once, and with great violence ; in some cases this new coming on of the symptoms is well-nigh instantaneous. Dr. Skene, of Brooklyn, tells me of a lady who in the Catskill Mountains was free from the disease ; but the symptoms came on while riding down the mountain. Visitors in the White Mountains who leave before the time of the attack has passed usually begin to suffer in less than twenty-four hours. In all such cases the disease appears to take about the same course, and at the same stage, that it would have done if the sufferer had remained all the time in the catarrhal regions, and disappears at the same time.

All observers agree that this annual retreat to exempt regions does not insure exemption for future years; the predisposition is unchanged, and the necessity of visiting exempt regions does not become less imperative. The habit of the disease is suspended, not eradicated, by many years of exemption gained by removal during the season of the attack. Protracted residence in Europe even has not removed the predisposition, for those who have remained abroad long enough to almost forget the disease are attacked on their return, and at the usual time.

Residence in Warm Climates.—Long residence in the South may gradually modify the predisposition to such an extent that the symptoms are much milder. Mr. C. W. Lewis, born in Boston, had the hay-fever from his earliest recollection; in 1867 he removed to Florida, where the attacks have grown milder each year, until at the present time he scarcely notices the symptoms except when exposed to a draught of air, or during a northeast storm.

The climate of California is, as is well known, very equable, the average temperature being about the same for each month in the year. I can find no evidence that hay-fever is indigenous there. I wrote to Dr. Gibbons, editor of the *Pacific Medical and Surgical Journal*, who kindly brought the matter to the attention of the San Francisco Medical Society.*

* Proceedings of the San Francisco Medical Society:

HAY-ASTHMA, OR SUMMER CATARRH.

"Dr. Gibbons, Sen., inquired if any of the members present had ever seen a case of hay-asthma, or summer catarrh, in California. The subject was now under investigation in the Atlantic States, where many individuals were so harassed by the annual recurrence of the disease that they fled regularly from their homes to seek some place of refuge exempt from it. Dr. Horatio Storer, Jun., of Boston, was one of these, and being in California at the meeting of the National Medical Association several years ago, he had remained over the summer and escaped the customary attack. Dr. Gibbons had never met with the disease on this coast; and

Hay-fever is not indigenous, so far as I can learn, in any country where there are no violent extremes of heat or cold. Europeans who visit India may be attacked while there, but not the natives.

MEDICAL TREATMENT.

The medical treatment of hay-fever may be constitutional or local. The constitutional treatment should consist mainly of tonics and sedatives, to fortify the system and allay the excessive local sensitiveness; of stimulants and narcotics, to relieve pain and distress and to induce sleep.

The local treatment should consist of those agents which both cleanse and soothe the irritated parts. Remedies used locally may also be absorbed to a certain extent, and thus affect the system as though administered by the mouth or injected beneath the skin.

The following methods of treatment are not given precisely in the order of their efficacy, for with our present knowledge it would be impossible to judge rightly of the relative value of the various agents that have been or could be employed. It will be noted that quite a large number of remedies are suggested, on the basis of what they have accomplished in other affections, and have not yet been extensively tried in hay-fever. It is believed that if those sufferers who have never yet tried medical treatment, or having tried many things without avail have become discouraged, will experiment with themselves, or allow their medical advisers to ex-

if all present had the same experience, it would be fair to conclude that it does not or can not exist here.

"No response was made to the inquiry.

"Dr. Gibbons would presume, from the silence of members on the subject, that no one present had ever seen a case of the disease in California. In upwards of twenty-four years of practice in this place, no case had come to his knowledge."—*Pacific Medical and Surgical Journal*, January, 1875.

periment with them, in the light of the suggestions given below, they will, in nearly every case, find something that will give them sufficient relief to more than compensate for all their efforts. This belief is based on the actual experience of a large number of hay-fever patients. The reproach that this is an entirely unrelievable disease must soon pass away. The attacks can not very often be prevented by medical treatment; they can not usually be greatly shortened; but the symptoms can be checked, their violence appeased, and the sufferings of the victims greatly mitigated, without any change of residence.

One must not expect that a remedy that relieves his neighbor will of necessity relieve him; and a remedy that serves well for this year or the next, or for a number of years, may in time need to be supplanted by something entirely different. All this follows from the fact that no two cases are precisely alike, each case differing from every other case in the inherited predisposition, and in the character of the irritants that excite the paroxysms.

Quinine.—Up to the present date quinine has certainly helped more cases of hay-fever than any other single remedy. A greater number would probably be aided by it if patients and physicians were more courageous in regard to the dose. Quinine is a remedy that many will bear in very large quantities without any permanent injury, and no temporary inconvenience save hardness of hearing, which soon passes away on the discontinuance of the remedy. There are cases where permanent deafness appears to have been caused by long-continued use of quinine for malaria; but such cases are not common. There are those, indeed, who contend that such cases have never occurred, that other causes have been at work in all those instances where quinine is the accredited origin of deafness. Dr. Roosa, of New York, whose capacities and opportunities for observation in

this department are exceptionally good, insists that in some cases, though not at all frequently, quinine does produce deafness. Those who are already deaf from chronic inflammation of the middle ear would do well to be somewhat cautious in the long-continued use of quinine in large doses. Those whose hearing is perfect need not be deterred from the doses ordinarily needed in hay-fever.

When given with a view to prevent the disease, quinine may be given for several weeks before the time of the attack, in doses of one, two, or three grains, twice or three times a day. This treatment may be kept up from two to three or four weeks. Just before, and at the time of the attack, the doses may be doubled and trebled, as the patient appears to bear the treatment.

A fact with regard to quinine, not always considered, is that its effects, whether good or bad, are transient; not only the temporary deafness, but all its effects, pass off as we suspend the use of the drug; hence the necessity of keeping up its administration while the symptoms continue, provided it appears to have any control over them.

The local use of quinine will be considered subsequently.*

Arsenic.—Like quinine, arsenic in the form of Fowler's Solution may be given before the date of the yearly visitation. The dose should not be large—from three to ten drops of Fowler's Solution after each meal. This remedy

* David J. Brakenridge, M.D., F.R.C.P.E., regards the following points as established in regard to the action of quinine on the white blood corpuscles and bloodvessels.

"1st. Quinine is a protoplasm poison, and limits the number and movements of the white blood corpuscles and pus cells.

"2d. It prevents the migration of the blood corpuscles into the tissues of the membranous and parenchymatous organs exposed to the air, both when it is given subcutaneously and when it is applied directly to the part.

"3d. It restrains the dilatation of the bloodvessels.

"4th. It is antiseptic, and exerts a paralyzing, or, in larger doses, a destructive influence on microzymes."

acts as a tonic, manifesting its effects both through the skin and the nervous system. It may be combined with tincture of belladonna, according to the following prescription :

Fowler's Solution..... one ounce.
Tincture of belladonna..... two drachms.

Dose, from five to ten drops after meals.

If the belladonna should cause much dryness of the throat, it may be discontinued.

With fluid extract of Rosin-weed, thirty drops four times a day, and Fowler's Solution, from three to five drops three times a day, or oftener, Dr. D. E. Smith, of Bronxville, N. Y., prevented an attack one year. The treatment was begun a month before the time of the annual appearance of the symptoms.

The objection to the granules of arsenic is that they sometimes injure the stomach, and produce unpleasant poisonous effects.

Whisky. — Whisky is in this country more likely to be pure than brandy or than the wines, and is the form of alcohol usually selected for experiments. Alcoholic liquors relieve hay-fever both by their stimulating and their narcotic effects. Alcohol is only to be used during the attack, and for the purpose of producing sleep and relieving the symptoms. When it agrees with the constitution, the temporary effects of this agent—so powerful for good or evil—are quite satisfactory, and are quickly appreciated. There are, however, a large number of individuals of both sexes in this country who are very susceptible to alcohol in any form, who can not bear it even in moderate doses ; such persons, whether they have hay-fever or any other disease, will usually get no good, and sometimes positive injury, from the use of whisky or wines or ales.

Those who resort to this remedy should bear in mind the

danger of forming the habit of drinking ; and for this reason the young especially should first try other methods of relief. With the aged this caution is hardly needed ; and it is with the aged, as a rule, that alcoholic liquors, in moderate doses, act most kindly, not only by inducing sleep and relieving pain, but to a certain extent by taking the place for the time of ordinary food.

Electricity in the Form of the Galvanic Current Centrally and Locally applied.—A mild galvanic current, from six to a dozen or more cells, may be applied centrally and locally with much advantage. Electricity acts at once as a stimulant, a sedative, and a tonic of great power, and hence is indicated both for temporary and permanent effects—for the relief of pain, and for the fortifying of the system against the attacks. In my own experience it has proved of immediate and most grateful service in hay-fever in two cases in which I tried it. One of these cases was mild, the other very severe, and had resisted various methods of alleviation.

The one practical difficulty with the use of electricity as compared with drugs is that it requires special apparatus, and should be used by one who is more or less familiar with the application of this force to the treatment of disease.

The faradic or induced current appears to be of comparatively little service, according to experiments thus far ; and, reasoning from analogy, we could scarcely hope much from it. The method of application to be recommended is that which brings the entire central nervous system under the influence of the current, so far as is possible by external applications. The negative pole may be placed at the pit of the stomach, and the positive applied a moment over the forehead and on the top of the moistened head, then over the front and back of the neck, and down the upper and middle part of the spine. Short seances—from five to ten minutes—and mild currents are to be preferred. By this

method of using electricity, Dr. W. F. Hutchinson, of Providence, succeeded in helping very materially one of his lady patients ; the symptoms were relieved and the attack shortened.

Central galvanization may well be used for a time previous to the season of the attack, and for the same reason that quinine and arsenic are used, namely, to tone up the system, so that it shall be better able to resist the heat and vegetable irritants that excite the paroxysms.

Electricity may be used in connection with quinine and arsenic. It does not interfere with any form of medication, local or general.

Strychnine and Iron.—These remedies are suggested mainly on theoretical grounds, since there is little evidence that they have been very thoroughly tried. Nux vomica, strychnine, and the many preparations of iron are exceedingly useful in anæmia and nervous exhaustion ; and it is reasonable to believe that hay-fever subjects who are pale, bloodless, and run down would be helped by taking a course of tonic treatment of this kind. For the strong and full-blooded—for those who in all other respects are well—this course of preliminary tonic treatment is not to be recommended. The weaker a hay-fever sufferer is, the more liable to various nervous symptoms, the more likely he is to receive benefit from tonic remedies of any kind.

The muriate tincture of iron, given freely and often in doses of two teaspoonfuls, will often break up a common cold in the head in less than twenty-four hours. Attention was first called to this fact by my friend, Dr. Prout, of Brooklyn ; his results have been confirmed by myself, and by a number of observers with whom I am acquainted. The results of the treatment are not uniform, but in the majority of cases it succeeds admirably. Acting on this suggestion, I induced a number of my hay-fever patients to try this rem-

edy, but so far as I can learn none were benefited. This fact might be regarded as an additional argument against the inflammatory character of hay-fever.

Phosphorus and Cod-liver Oil.—These remedies have been tried somewhat already, but not to any considerable extent, and with scarcely sufficient thoroughness. Debilitated patients, and especially those whom the hay-fever leaves with a cough, would be likely to be aided in the progress toward recovery by cod-liver oil.

Phosphorus in somewhat larger doses than those generally used may be tried. Thompson's preparation is to be commended. The prescription is as follows :

Phosphorus.....	1 grain.
Alcohol absolute.....	5 drachms.
Glycerin.....	12 “
Alcohol.....	2 “
Spirit of peppermint.....	2 scruples.

This solution is clear, and is not hard to take. It may be taken in doses of from one quarter to one half of a teaspoonful, three or four times daily, after meals. Only in rare cases does it disagree with the stomach.

Pills of phosphide of zinc of one quarter to one tenth of a grain act well in many cases.*

Turkish and Russian Baths.—Among sedatives and tonics Turkish and Russian baths rank high; and they have the advantage over many medicines that they are to those who know how to use them wisely a most agreeable method of treatment. They can be taken before and during an attack of hay-fever, and, if circumstances favor, in the evening.

* The powerful remedies mentioned in this chapter should be used, in the first instance at least, under the direction of a competent medical adviser. Self-treatment, after it has once been learned, may oftentimes be carried out successfully and without peril; but reckless experimenting with remedies that act capriciously and very differently on different constitutions is to be avoided.

Those who are not situated where they can avail themselves of regularly arranged baths of this kind can extemporize something of the sort at home.

It may be noted here that any thing that produces easy perspiration is likely to be of service in hay-fever—whisky, or baths, or in some cases moderate exercise, or ordinary warm baths at home. One case has been brought to my attention in which the attacks are always broken off by a few Turkish baths.

Opiates.—The hypodermic injection of morphine during an attack in one case broke it up completely for that year; but a result of that kind is not usually to be expected. A relief of the pain, with the privilege of sleep for a few hours or a portion of a day, are perhaps about all that can generally be hoped for from a single dose; but in certain stages relief for one night or so is a great boon.

Morphine may be combined with atropine in appropriate doses in the proportion of one sixth of a grain of the former to one hundredth of a grain of the latter.

Cold-powder.—The local applications of camphor are good, and it might be believed that the same remedy would act well given internally. I would suggest the cold-powder to which I called attention some years since. For a common cold, taken early, it is most excellent, and is superior to the ordinary Dover's Powder in that it is almost tasteless, and without seems to be more effective. In some cases, though not in all, it causes a gentle and sensible perspiration. The prescription is as follows:

Camphor, five parts. Dissolve in ether to the consistence of cream. Then add,

Carbonate of ammonia, four parts.

Powdered opium, one part.

Mix thoroughly, and keep in a tightly corked bottle. The dose is regulated by the opium entirely, and is from five to

ten grains. Those who are specially sensitive to opiates should take a small dose. The powder may be taken on retiring.

Bromide of Potassium and Hydrate of Chloral.—The bromide of potassium alone does not seem to be sufficiently powerful to overcome the symptoms to any great extent; but combined with hydrate of chloral it soon produces sleep, which for so many is the one needful thing. It should be remembered always that the hydrate of chloral, when given in large doses, may excite evil symptoms, therefore it is better to take this remedy under the advice of a physician, if possible. The effectiveness of the bromide and of the chloral are increased by their combination. The bromide of potassium alone has not been tried as yet in a very large number of cases, so far as I can learn; and the suggestion is offered that those who have found this drug to work well with them in their sick-headache and analogous disturbances may try it in hay-fever, using it freely several times daily. It is a safe remedy, and may be taken by most adults in doses of from twenty to forty grains.

Belladonna.—This remedy is an old one for asthma, and may be applied internally or locally. Internally it may be given combined with arsenic with advantage, as already suggested. Like ergot, belladonna constricts dilated blood-vessels. When given by inhalation absorption rapidly takes place, and both the constitutional and local effects are produced.*

* The following letter is taken from the *Philadelphia Medical Times*, 1874:

"BOSTON, September 26, 1874.

"To the Editor of the *Philadelphia Medical Times* :

"DEAR SIR,—Dr. Wood's experience as to the superior efficacy of belladonna as a remedy in spasmodic asthma, communicated to your valuable journal of the 19th inst., is quite in accordance with my own. May I take the liberty of adding that I find the most prompt and effectual way of

Iodide of Potassium, Iodine.—This is an old remedy for asthma and bronchitis. It is one of the ingredients in some

administering it is by inhalation by means of an atomizer? I was induced to try this method, some years since, in the case of Dr. Derby, the late lamented secretary of the Board of Health of this state. When he consulted me he had been suffering for six weeks from attacks of spasmodic asthma, which compelled him to rise at about one o'clock A.M., and pass the rest of the night without sleep by his furnace fire, smoking cigars. He had lost much flesh, and was a good deal exhausted by the want of sleep. After trying various remedies without much relief, I suggested to him to inhale a mixture of a drachm of fluid extract of belladonna to an ounce of water, by means of an atomizer, as soon as the next attack began. I recommended the extract in preference to the tincture, as it is much stronger and appears to be more reliable. Dr. Derby, however, employed the tincture, and the very first experiment was a complete success. When he retired at night he placed his atomizer with the belladonna mixture by his bedside, in readiness for the emergency. At one o'clock the paroxysm came, and he immediately had recourse to the atomizer. In fifteen minutes he was entirely relieved, and fell asleep, to awake again at six o'clock with a light return of the asthma. A second inhalation relieved him in five minutes, and he fell asleep again. The next day I found him much refreshed and jubilant, feeling that the spell was broken. He had no recurrence of the asthma after that time, but felt that he had a certain remedy, should it ever return, in the belladonna inhalation.

"I ought to say that Dr. Derby had for many years been asthmatic, being one of the excessively susceptible class in whom paroxysm is induced by the proximity of a cat or a dog, or even of a horse. During the late war, in which he served with great distinction, he told me that he could not inhale the breath of his horse, or handle him in any way, without oppressed breathing.

"It seems to me that the inhalation of belladonna has a decided advantage over its administration by the mouth in that it acts directly upon the affected parts, at the same time that it enters the circulation more promptly through the mucous membrane of the lungs. Again, its use can be exactly guided by its effects. The inhalation can be stopped at once on the occurrence of any of the uncomfortable physiological symptoms which it is liable to cause; in other words, the dose can be limited to precisely the quantity needed to produce the desired effect.

"At the time when Dr. Derby first employed it, examination of his chest showed universal strong resonance on percussion, very feeble respiratory sound, and very abundant fine sibilant rales—a pure case of spasmodic asthma.

"With regard to the use of chloral and bromide of potassium together as a sedative in these and other cases of chest affection, I would say that

of the patent medicines that are so highly praised for asthma and hay-fever.* On the basis of this experience it may be worthy of a trial, and may be given in doses of five grains three times daily, and preferably during the time of the asthma, and the doses may be doubled, if there is any encouragement to do so.

Carbolate of iodine has helped in some cases. It is used by the method of inhalation.

Aconite, Digitalis, Veratrum Viride, Gelsemin.—These drugs, under the advice of a physician, are all worthy of a trial in the febrile stage of hay-fever, especially the former. Dr. Ringer remarks that we are just beginning to know the value of aconite. In the disease under consideration none of these remedies have been tried to any considerable extent.

Guarana.—In sick-headache the comparatively new remedy, guarana, given early in full doses—from two to four or half a dozen teaspoonfuls of the elixir—is in many cases quickly and delightfully effective. It would be well to make a trial of it in hay-fever. It is a safe preparation, and may be used freely.

Caffeine.—One of the most efficient remedies for sick-headache is caffeine, an alkaloid common to coffee, tea,

I have repeatedly used this combination, and I dare say it has occurred to many others to employ it. During the present autumn some of my patients who are victims of 'autumnal catarrh' have found great comfort from it. The addition of a little morphia adds to its efficacy, and in one instance at least, that of a lady who is very susceptible to the disagreeable after-effects which opiates so often produce, the chloral and bromide seem to prevent their occurrence entirely.

"Very respectfully, your obedient servant,

"S. L. ABBOT, M.D."

* It should be noted that the various patent remedies for hay-fever, which are more or less successful in a certain proportion of cases, contain, so far as I can ascertain, only familiar drugs, such as are mentioned in this chapter. It is wiser and safer to trust to remedies the ingredients of which are known, and to give no heed to those who claim to have discovered a specific for all forms of hay-fever.

chocolate, and guarana. A dose of from one to three grains in water will sometimes break up a severe headache in less than half an hour, and save hours, if not days of misery. I am not aware that hay-fever has ever been treated by this remedy.

Muriate of Ammonia.—This salt, given in doses of from twenty to thirty grains just as an attack of sick-headache is coming on, often acts as speedily as guarana, and may succeed when guarana fails. By the Germans muriate of ammonia is given largely in many affections of the respiratory passages. It may be taken freely and often, well diluted.

Prussic Acid.—This powerful and, in the hands of non-experts, dangerous agent is suggested here on the recommendation of one of the best physicians I ever knew, Dr. Wey, of Elmira, who has given much attention to the subject of hay-fever, and has used prussic acid in connection with quinine, and with good results.

Nitrite of Amyl.—In ordinary asthma, angina pectoris, and epilepsy, inhalations of nitrite of amyl give important relief. A few drops on the handkerchief, and inhaled, mitigate the distress and cut short the attacks. The remedy, though powerful and very rapid in its effects, is not dangerous. This remarkable agent ought to be thoroughly tried, not only in the asthmatic, but in all the stages of hay-fever.

Iodoform.—This substance, given internally in the form of a sugar-coated pill, as now manufactured, sometimes works admirably as a tonic in hysteria and allied disorders. It does not work equally well in all cases, but for some cases it seems to have almost a specific power. As a sedative and tonic, it may be tested by those suffering from hay-fever who are not benefited by ordinary treatment.

Ergot.—Ergot, in the form of the fluid extract, in doses of say one or two teaspoonfuls every three hours, might be tried in that stage when the discharge is very profuse. Ergot

has the power to constrict blood-vessels, and by virtue of that power it is given in hemorrhage from the lungs and nose, in piles, and in congestion of the brain and spinal cord. It is probable also that ergot acts on the nerves directly in a manner not yet understood.

Ipecac.—Some persons are made asthmatic by ipécac; others seem to be relieved of the asthma by the same substance. In one or two cases, when given in nauseating doses, it has been of service in hay-fever.

Inhalations of Ether or Chloroform.—In desperate cases inhalations of ether or chloroform will be sure to give at least temporary relief. Patients should not, however, resort to these dangerous experiments except under proper advice.

Dr. Hyde, of Danielsonville, Connecticut, cured himself one year by a full inhalation of ether, which he resorted to in temporary despair. The relief was immediate; he came out of the anæsthesia entirely free, and was troubled no more that season. The next year he tried the same treatment without effect.

In such cases the cure must be the result of a powerful impression made on the nervous system. Sudden cures by injection of morphine are similarly explained.

Apocynum andromifolium (Dog's-bane, "wandering silk-weed").—A saturated tincture of this drug in teaspoonful doses several times daily relieves the cough and asthma. Relief is also obtained by simply chewing the root.

Grindelia robusta.—In California *grindelia robusta* has been used in ordinary asthma with asserted success. The dose is two or three grains of the solid extract three times a day.*

* Recent issues of the *Pacific Medical and Surgical Journal* (1875-76) contain several articles on this subject.

LOCAL TREATMENT.

In considering the local treatment, it should be kept in mind that some of the parts involved in a full attack of hay-fever are so situated that they can not be easily reached by superficial and careless procedures. The nasal passages and the naso-pharyngeal space are made up of sinuses, windings, and turnings, many of which can not be seen by the eye unless aided by instruments, and are not reached, except in an imperfect manner, by the common device of snuffing up solutions.

Again, it should never be forgotten that the mucous membrane lining these parts is sensitive, and can not bear strong applications, and is more likely to be harmed than helped by any treatment that causes much pain. The temptation is to overdo treatment, to use over-strong solutions, and to resort to them too frequently; and when failure to relieve the symptoms results, or, as is sometimes the case, they are made worse, the remedy gets all the blame. The nerves supplying these parts are exceedingly sensitive; it is because of their special sensitiveness that hay-fever appears.

It is of immense advantage to have the local treatment, whatever it may be, given, at the outset at least, under the direction of some physician familiar with such matters, and in time the patient will learn to carry out some of the details at home.

The recently constructed atomizers are of great value for hay-fever sufferers; they can be used with various solutions. The mistake of using cold water should be guarded against, and the applications need never be very prolonged.

The object of the local treatment, it should be noted, is not to act with specific power on the parts, but to cleanse, to soothe, and to allay irritation, and inflammation also if it should exist. These ends are obtained by a very large num-

ber of agents. Among those which thus far have proved most successful in the largest number of cases are—

Quinine,	Common salt,
Camphor,	Tannic acid,
Iodine,	Carbolic acid,
Glycerin,	Chloroform.

These substances may be used in varying strengths and combinations, the fact being never absent from the mind of the physician or patient that individuals vary in their susceptibility to different methods of treatment almost as much as in their susceptibility to the exciting causes of the disease.

My friend, Dr. R. P. Lincoln, of New York, has given much attention to the local treatment of hay-fever in its different forms, and has studied the subject with care and patience. His views in regard to the principles and details of treatment, local and general, accord with my own so completely that I requested him to prepare a communication embodying the chief points for publication in this treatise. He kindly consented, and sent me the following letter, to which I call special attention :

“The congestion and swelling of the mucous membrane of the nose can be at once relieved by passing over its surface the vapor of equal parts of the compound tincture of iodine and acetic ether. About fifteen drops may be put on a sponge in a ‘Butler’s tube,’ and after being heated and the tube placed in one nostril, a continuous current of air, forced by any means, will bring the vapor in thorough contact with the inflamed surface. Spirits of camphor serves a similar purpose, but the former has my preference.

“If better facilities are not at hand, twenty drops of the former or twenty-five of the latter, or even thirty of paregoric, may be added to a pint of warm water, and the steam, carrying with it these volatile remedies, inhaled through the nostrils.

“Liquids have been recommended to accomplish the same purpose, but the violence that will attend their use renders them objectionable, and, as a rule, they will only aggravate the distress ; but if atomized, this disadvantage is partly obviated.

“Blowing in of powders also has its advocates, but where the membrane is so very irritable as in this disease the same objection holds as with liquids.

"Usually in less than half an hour, the vapor having been applied several times, the frontal pain and sense of tightness will be relieved, the secretion becomes well established, and its character changed by the blood-vessels becoming partially unloaded.

"Often it is necessary to repeat the volatile cleansing application several times; but as soon as a tendency to a recurrence of the congestion is overcome and the flow of mucus well established, either by our own efforts or by the natural course of the disease, we are to combat the succeeding stages by solutions, astringent and possibly antiseptic, but at any rate of a tonic character, and they should be applied in the form of a spray.

"The following combination I have found most serviceable in restoring the nasal mucous membrane to its normal condition after the second stage of the disease is established :

"Tannic acid.....	forty grains.
Common salt.....	half a drachm.
Glycerin.....	half an ounce.
Water.....	seven and a half ounces.
Carbolic acid.....	three grains.

"This I prefer to apply myself freely once a day; at the same time I place in the hands of the patient, to be used in the same way (as can be done very well from a perfume atomizer), or snuffed from the hand so as to bathe the parts attacked, or poured into the nostrils from a pipette, as was practiced by Helmholtz, the following :

"℞ : Camphor water.....	four ounces.
Sulphate of quinine	six grains.
Common salt.	half a drachm.
Water.....	four ounces.

"With the advent of the second stage the following pills will be of great service :

"℞ : Sulphate of quinine.....	one grain.
Camphor powder.....	one grain.
Extract of nux vomica.....	one fifth of a grain.
Extract of hyosciamus.....	one grain.

"One to be taken four times in the twenty-four hours on an empty stomach; i. e., early in the morning, at the middle of the forenoon and afternoon, and at night. The proportion of camphor may be diminished *pari passu* with the disappearance of the coryza, but the remainder of the formula should be continued several days after all the characteristic symptoms have disappeared from the upper air passages.

"To the inflamed conjunctivæ the following collyrium will be found grateful and healing :

“R: Biborate of soda..... eight grains.
Camphor water..... one ounce.

“Or, when the lids are swollen, the following :

“R: Biborate of soda..... one scruple and a half.
Water of bitter almonds..... one ounce and a half.
Liquor of subacetate of lead... three drachms.
Water..... four ounces.

Add three teaspoonfuls to four ounces of cold water and apply to the closed lids.

“When the mucous membrane of the Eustachian tube is involved, and we have distress in the ears, and more or less deafness in consequence, these parts can be subjected to the influence of the iodine and ether vapor by employing Politzer's method of inflation with the instrument before referred to.

“If the congestion here is persistent, or inflammation fully established, much benefit will be realized from the derivative effect of the circumscribed application of the nitrate of silver to the pharyngeal opening of the diseased tube.

“When the external ear is inflamed, the same principles, so far as local treatment is concerned, must be adopted as would be serviceable in similar conditions under other circumstances.

“The naso-pharyngeal mucous membrane being histologically the same as the Schneiderian, is to be subjected to the same principles of treatment, to the same local remedies, and they are to be similarly applied.

“For the pharynx the throat douche is of the greatest utility of all appliances in the hands of the patient, though it is of service to a limited extent. Local medication can be here used one fourth stronger than in the nostrils, and it will often be found advisable early in the treatment to increase the proportion of carbolic acid to five or six grains to the ounce of solution.

“This will usually allay at once that distressing and peculiar itching and smarting that occurs, especially on the palate, though to entirely control it it may be necessary to insure the application of the remedy on its nasal surface.

“The irritation of the bronchial mucous membrane is with some a source of great discomfort and suffering, being attended with cough, constriction of the chest, and asthma. The last symptom readily yields to inhalations of nitrite of amyl, chloroform, and sometimes steam, while inhalations of carbolic acid, one grain to the ounce of water, atomized, will have a more lasting effect. At the same time the constitutional remedies must be steadily pushed. When the cough is hard and persistent I have found it requisite to administer a mixture containing iodide and bromide of potash with tincture of belladonna, to be gradually withdrawn when the expectoration became free and easy.

"I have been so well satisfied with this principle of treatment and the success attending it during the past two years that I have adhered generally to it. I can refer to many patients that have been relieved of all disagreeable symptoms while practicing it, and to others that seem to have been cured, for the season at least, in a brief time. However, the greatest benefit to be derived from treatment consists in the prevention of the disease by anticipating the period of attack, by fortifying against it by a faithful observation of the rules of medication prescribed. For this purpose I advise the constitutional tonics quinine and nux vomica with the washes for the upper air-passages, the formulæ for which have already been given. I can not better impress upon one the importance in which I hold this principle, and the success that may attend it, than by reporting the case of a patient to whom I referred you, and whom you saw this season. I will therefore give a brief outline of his case :

"Mr. F——, a merchant, thirty-five years old, of good general health and nervo-sanguine temperament. He had suffered from attacks of 'hay-fever' for at least the past twenty years, each attack beginning about the first of July, and lasting four or five months. I first saw him the last of July, 1873, when he was in the midst of an attack. On account of general prostration, nervous and physical, he had been obliged to suspend work. He complained of constant frontal pain, pain and heat in the nose and throat, some cough, and difficulty in breathing other than from nasal obstruction, and also that the nostrils were most of the time occluded. At times there was considerable tightness across the chest, and frequent flashes of heat over the body; there was also loss of appetite and wakefulness at night. To inspection the nose was swollen, and even tender to pressure; the mucous membrane of each nostril was congested, pulsating, so swollen as to fill it completely, and pouring out a profuse mucous discharge. The palate, pharynx, larynx, and trachea presented a similar condition, together with some pain on deglutition.

"On examining the lungs there was found evidence of slight bronchitis. The conjunctivæ were red, and the lids painful and swollen.

"Treatment was daily administered at my office, after the plan heretofore described, for the different organs, and at the expiration of two weeks he resumed his duties with confidence, though continuing the douches and the pills still longer.

"The present season, beginning some three weeks before the expected attack, he used the wash No. 2, snuffing the fluid through the nostrils, and gargling with the same three times a day. Two weeks later he took one grain of sulphate of quinine and one fourth of a grain of nux vomica in pill between meals. The pills were discontinued after three weeks, but the wash was persevered in until quite recently.

"The patient has so far (1874) escaped, and now thinks there is no danger of an attack. The following year (1875) he was not attacked.

"I will add that he has never taken a sea-voyage or made trial of Mount

Washington while suffering from the disease ; but that neither the seaside nor the city nor country ever afforded relief."

To this letter little need be added. As a summary of the principles and practice of the medical treatment of hay-fever whenever and wherever occurring, it is most judicious and admirable, and will be sustained by the experience of the future.

Although Dr. Lincoln accepts substantially the theory of the disease advocated in this treatise, he yet, as he informs me, was not led to adopt this treatment through any theory, but through experience only. Trying many methods, he found the above to be the most successful.

Explanation of the Beneficial Effect of Local Applications of Quinine.—Local applications of solutions of quinine, however made—by the atomizer or by injection—are of service in many cases, although they frequently fail. Usually quinine is combined with some other substance, but benefit is appreciated when it is used alone. How are we to account for this? It is possible that the infusoria spoken of by Helmholtz may in some cases appear as a *result* of irritated states of the nostrils during an attack of hay-fever, and may by their presence make the symptoms worse.* As these infusoria are destroyed by quinine, relief for that reason may follow its local application. But there is no evidence that infusoria appear as a result even in any considerable number of cases. The sensitive and irritated nerves are without doubt soothed and strengthened by the direct local action of the quinine upon them.

Absorption of the quinine will also take place in a moderate degree, and thus the whole system may be affected as when the remedy is given by the mouth.

* It is held by some authorities that the *bacteria* which are found in diphtheria, for example, are the incidental product of the disease, and not its cause.

The cleansing action of solutions of any kind should also be noted ; any thing that removes the irritating substances, whatever they may be, as well as the collections of secreted matter, will give at least temporary relief.*

Salicylic Acid.—This new deodorizer, which by some has been thought to be superior to carbolic acid, and which seems to act kindly on mucous membranes, has been tried by only one of my correspondents, and without avail. If used, it should be as an adjunct to anodynes.

Pinus Canadensis.—Recently diseased mucous membranes, in various parts of the body, have been treated successfully by this remedy.

Dr. Twining, of Chicago, recommends the following prescription in hay-fever :

Concentrated fluid extract of <i>Pinus Canadensis</i>	1 drachm.
Water	1 pint.

This may be used with the atomizer.

Subnitrate of Bismuth.—Dr. David Ferrier, of London, has lately published in the *Lancet* an article recommending subnitrate of bismuth for a cold in the head.

The bismuth is combined with morphine and gum arabic in the following proportions :

Hydrochlorate of morphia.....	2 grains.
Powdered gum arabic.....	2 drachms.
Subnitrate of bismuth.....	6 “

When the cold in the head first appears this powder can be snuffed up freely and often. Dr. Ferrier claims that by this remedy he never fails to relieve himself completely in a few hours, and several of his friends who have also tried it are enthusiastic in its praise.

* It is proper to caution patients against the careless use of the “nasal douche.” It has been shown by Dr. Roosa and others that solutions forced into the nostrils by this contrivance sometimes pass into the middle ear, and give rise to serious trouble.

The ^{*}remedy is simple and safe, and is adapted for domestic use. Hay-fever sufferers would do well to give it a trial.

It may fail, however, just as in my hands muriate tincture of iron has failed, although in a common cold it works admirably.

Ice.—A piece of ice held on the nose, or bits of ice held in the mouth, have relieved the burning feeling by which some of the victims are annoyed. Chapman's ice-bag may be applied to the upper part of the spine for five or ten minutes at a time, with a view to making an impression on the nervous system.

Wet Handkerchief over the Mouth and Nose.—While traveling on the cars relief from the dust and cinders has been found by holding over the mouth and nose a wet handkerchief. One of my correspondents lauds this simple device very highly.

Head-bath.—Holding the head for a few minutes over a bowl of hot water or milk and water gives relief when the nostrils are greatly irritated and the discharge is profuse. A shawl may be thrown over the head and shoulders to confine the steam.*

* Dr. Dobell's treatment for asthma is thus described by one of the medical correspondents of the United States Hay-Fever Association :

"A new remedy for hay-fever and sneezing, by Horace Dobell, M.D., senior physician to the Royal Hospital for Diseases of the Chest.

"The prescription is as follows :

Chloral hydrate and camphor, of each	16 grains.
Carbolic acid.	20 "
Pure morphia	13 "
Oleic acid, enough to dissolve the morphia.	20 "
Castor-oil (the cleanest and finest)	7 drachms.

"Rub well together and make a lotion.

"The 'contrivance' for the efficient application of the above remedy consists of a miniature bottle contained in a little boxwood case, so that it can be carried easily in the pocket. To the lid of the box is attached the cork of the bottle, and to the cork, in the same fashion as the spoon of a cayenne-pepper cruet, is fixed a little club-shaped rod of

Smoking Stramonium and Inhaling Saltpetre Paper.—These well-known methods of relieving asthma serve well in the asthmatic stage of hay-fever. Other remedies mentioned above may, however, to a certain extent displace them. Three parts of stramonium to one of saltpetre is a good combination.

Dr. Wyman recommends the following prescription for Es-pic cigarettes :

R: Belladonna leaves.....	4½ grains.
Hyoscyamus leaves.....	2½ “
Stramonium leaves.....	2½ “
Phellandrium aquaticum leaves.....	¼ “
Opium.....	⅓ “

Carefully mix and roll up in paper ; only two cigarettes to be smoked during an attack.*

Aqua Ammonia.—Inhalation of hartshorn has been a means of relief in a few cases. It is a very simple and easily tried remedy. Trousseau in his lecture on asthma refers to a local application of a mixture of liquid ammonia and water to the back part of the pharynx. This method was originally proposed by Ducros, of Sixt, France. There is some risk of bringing on unpleasant symptoms, and only a physician should resort to it. Says Trousseau : “ I first make the pa-

polished ivory, long enough to reach to the bottom of the bottle, and also to the extremity of the nostril ; the little bottle is kept half full of the lotion above prescribed, and the little rod is immersed in it. Directly the patient feels the tickle or other signal of the coming sneeze, he uncorks his bottle, withdraws the ivory club wet with the oleaginous lotion, and gently pushes it up the nostril till it reaches the seat of the sneeze signal ; there it should be gently pressed so as to apply the lotion to the part. After this the club is withdrawn and returned to its little bottle of fluid, where it becomes at once charged for a fresh application. As often as the sneeze threatens the operation should be repeated. Very often one application will keep off a threatened fit of sneezing altogether, even though its first effect may be to excite a sneeze. It has been of so much comfort in cases within my own practice that I am sure it is worth while for one who has not found a remedy to give it a trial.”

* Op. Cit., p. 132.

tient inhale some ammonia from a bottle, and after this I apply to the back of the throat, on the first occasion, a solution of one part of liquor ammoniæ to nine of water. The next day I use eight parts of water to one of ammonia; and I diminish the quantity of water by degrees to one third, until the patient has grown accustomed to it, when I use equal parts of water and liquor ammoniæ."

Another method is for the patient to hold his mouth over a vessel containing some liquor ammoniæ, stopping the nostrils with cotton wool, so that the nasal passages, which are always sensitive, may not be affected. This inhalation may be kept up for a quarter of an hour.

Chlorate of Potash.—This drug, as a local application in ordinary catarrh, is excellent. For hay-fever it may be combined with some anodyne, as morphine, as in the following prescription:

Chlorate of potash	60 grains.
Sulphate of morphine.....	12 "
Water.....	6 ounces.

This may be used with the atomizer.

Sulphur.—A piece of sulphur held in the mouth when a paroxysm is coming on. J. G. King speaks highly of this experiment. He supposes that it relieves through the fumes that rise into the nose. Others also speak favorably of the same remedy.

Dr. Lincoln sometimes allows his patients to snuff up a very little of the vapor of chloroform, for the sake of local without the constitutional effects.

Dry Camphor placed on a thin cloth on the pillow at night has been suggested.

Dr. Thorne, of Brooklyn, found relief by inhaling tincture of myrrh and spirits of turpentine.

No one need be deterred by the variety of treatment here suggested. All of these various remedies, and methods of

using remedies, are referable to the same general principles of treatment—namely, to fortify the system against the attacks and to relieve the symptoms. All of these remedies act as tonics, sedatives, or anodynes. No one, nor all combined, act specifically for all cases; but some are almost specifics for individuals. The best course for patients is to submit themselves to their medical adviser, who can act according to the suggestions here given.

Those who have never tried any medical treatment would do well to begin with those remedies which have thus far proved to be of service in the largest number of cases—as quinine, arsenic, camphor, electricity, hydrate of chloral, bromide of potassium, and stramonium, and then, if these fail, to experiment with other substances.

The proper treatment for each case, after it is once ascertained, will usually be found to be very simple and easily carried out. None of the remedies indicated above, when properly used, need injure any one. In judicious hands the most powerful poisons can be tested without incurring the risk of permanent injury, local or general.

HYGIENIC TREATMENT.

The general principles of the hygiene of hay-fever readily suggest themselves by what has preceded. One lesson which is taught by a practical familiarity with a large number of cases of the disease is that it is not to be cured by depleting or exhausting measures of any kind, but, on the contrary, it needs all possible calming and strengthening influences. It is in part a disease of debility, and the hygienic, like the medical treatment, should be regulated accordingly.

Diet.—The starving-out plan is uncalled for in hay-fever, and will work evil more than good. A liberal and varied diet, consisting of those articles that are nutritious and agreeable, and not specially difficult of digestion, is to be prefer-

red always, both before and during the attack. Those who are specially susceptible to particular substances, those, for example, who can not digest pork or sausages or pastry, or who are made nervous and sleepless by coffee or alcoholic liquors, or whom certain fruits injure by their mechanical action on the pharynx or through the digestive organs, need no advice to abstain from these things while the symptoms are upon them. The partaking of a moderate quantity of easily digested food before retiring will be likely to aid sleep somewhat in those who are troubled with wakefulness.

Exercise.—Severe physical exertion during the attack is neither agreeable nor advisable. Exercise that induces a gentle perspiration is in some cases of temporary utility; but usually patients are indisposed to exertion. Out-of-door exposure is of itself harmful, because it brings the sensitive and diseased parts under the influence of the exciting causes.

All sufferers who have made the experiment agree that the best course is to *keep as quiet as possible in a closed room*; those who obey this injunction do all that is possible without removal to a non-catarrhal region, for thereby they keep clear of sunlight,* dust, vegetable irritants, chills—in short, all the exciting causes.

“Down-cellar is the best place,” said one of my correspondents; and were it not for the danger of taking cold, this suggestion might be generally followed.

Clothing.—The sufferers from hay-fever should dress warmly at all seasons; and during the attack flannel should be worn next the skin. They should never allow themselves to be long chilly. While at the mountains or sea-side, or on the ocean, it may be well on specially cold days to wear double flannels.

Sleep.—All the sleep possible by night or day should be the aim, either with medicine or without it; for wakefulness

* It is in some cases of advantage to protect the eyes by goggles.

and loss of sleep tend to aggravate the symptoms. The suggestion of Dr. Wyman that the sleeping-room be kept closed and still, so that the irritating particles in it may be allowed to settle, is a good one.

Abstaining from Shaving.—Allowing the beard to grow is claimed by some of my correspondents to be a hygienic measure of great value. The suggestion is worth consideration, and in connection with it the inquiry might be raised whether the majority of hay-fever subjects are or are not accustomed to shave closely. The irritation of the act of shaving is felt quite sensitively by the eyes when those organs are in a weak condition, and the theory is perhaps admissible that the same process may increase the sensitiveness of the nerves of the nasal passages. Possibly, also, the mustache may prevent somewhat the introduction of irritants.

CHAPTER VIII.

ILLUSTRATIVE CASES OF THE DIFFERENT FORMS AND
PHASES OF HAY-FEVER.

THE details of the experiences of hay-fever sufferers are of interest both to their fellow-sufferers, who are comforted to learn that they are not alone in their strange affliction, and to physicians, who, on account of the comparative novelty of the disease, and the mystery that has surrounded it, need all possible information concerning it.

The following reports were mostly called forth in reply to my circular of inquiry, and are either taken directly from those tabulated replies, or from letters addressed to me in connection with them. When a letter or statement is taken from other sources the fact is stated.

It is believed that nearly every distinctive phase of the disease in the early, middle, and later forms is here represented. An excess of material has been placed at my disposal, and in making selection for publication the plan has been to take such facts as are of special interest, scientific or practical, and have a direct bearing, one way or the other, on the various problems connected with the nature, the symptoms, the prevention, and the treatment of the disease.

Some of the statements, it will be observed, are presented in a peculiarly graphic and attractive style, and, taken together, give a picture of the experiences of the victims of this disorder at once more vivid and more truthful than can be condensed in a single formal chapter, or than it is possible to convey by even the most elaborate statistics.

In preparing some of the reports for publication, it was found necessary to make more or less verbal changes, and in some instances only the more interesting and important portions are selected ; these are arranged so as to make a connected history.

To present the cases in fully systematic form would be impossible. An attempt is made, however, to give the different forms in regular order, and also to group, so far as possible, the topics that are of special interest.

Those who hesitate at adopting the theory of hay-fever advocated in this treatise will find in this chapter and in that devoted to the statistics of two hundred cases sufficient material, impartially collected, out of which they can construct whatever other theory may be more agreeable to them.

One of the most remarkable cases of hay-fever that has come under my personal observation was the following ; several important facts of the disease as taught in this volume are suggested by it—its hereditary character, the interchangeability of the early and later form, the nervous character of many of the symptoms, and their relation to the nervous diathesis.

Mrs. M. W. Dyer, of Brooklyn, Connecticut, aged fifty-one, has had the early form of hay-fever ever since she was eighteen years of age. The attacks come on in May, varying somewhat in the date, and disappearing in October or November. She has had attacks as late as November.

Her first attack, as she remembers, *was in winter*, and was excited by roses in the house.

The attacks are now excited by roses and other flowers, by dust and new-mown hay, and by a chill. I saw Mrs. Dyer in the height of an attack after she had been exposed to hay. Mrs. Dyer is of the nervous temperament, is nervously exhausted, and has had much backache, and has been troubled by palpitation of the heart and sleeplessness. She has fewer of these nervous symptoms during the attacks of hay-fever.

The hereditary character of the disease is in this family most strikingly illustrated. Her husband and his ancestors had asthma and catarrh ; her brother, residing in New York, has the later form, or autumnal catarrh ; her youngest son has the same form of the disease ; and three of

her children have the early form like herself. Her children were young, and the attacks first came on with all of them in early childhood.

Mrs. Dyer does not have the asthma nor any cough. She was better when she lived in the city of Newark, New Jersey; her son also is better in a city.

That cough and asthma appear in the early form of the disease the following case demonstrates:

"Mrs. J. H. Robinson, of Danielsonville, Connecticut, of nervous temperament, is attacked about June 1. One year she was exempt. She has both cough and asthma, which comes on in the middle of an attack. The disease disappears about July 20. The dust caused by sweeping will bring on a temporary attack in the winter. She is subject to sick-headache; is worse on hot days."

The following case of a Connecticut lady is interesting in many ways. It represents the early form, beginning in May or June, and ending in July. It is accompanied with cough and asthma. It began in childhood.

There are decided premonitory symptoms, although the general health is usually good. It is arrested during nursing. In the South the symptoms did not appear, even when the irritating causes were abundant. It is relieved at the White Mountains.

This case refutes, so far as a single case can, a large number of the accepted errors in regard to hay-fever. Had we no other instance than this, we should suspect that much of what has been taught and believed on the subject is erroneous:

"BETHLEHEM, June 28th, 1875.

"The disease comes on June 1st or a few days previous; it varies in its commencement with the advance or lateness of the season—it has come on the 23d of May. In some degree I have suffered since I was a small child. I did not know what it was till I was sixteen or seventeen—when the asthma first appeared. The attacks vary so little that I do not recall a slight one except one year when the house was being painted outside, and there was a strong smell of *turpentine*—three years since. The only abatement has been at times in the middle of the day. I have a distressing cough, and asthma so severe that I can neither speak, eat, nor make the slightest exertion.

"The disease seems to have taken the asthma form almost entirely for the last six or seven years; the head symptoms are comparatively slight. Formerly, when the sneezing and tears lasted four weeks, with the utmost violence, they would disappear in a single night, and leave no trace, and the whole force be expended upon the chest. It is usually worse at night, after waking in the morning, and on waking after a nap in the day. Fresh hay, roses, sunlight, and dust excite the paroxysms.

"Attacks first came on in my native state, Massachusetts, soon after the 15th or 19th of July; since I resided in Connecticut, soon after the 1st or 4th; if the season is late, it disappears later. The frosts have no relation to my variety of the disease, unless they are very untimely. Weeping, of course, aggravates the head symptoms; and any excitement, however slight, as the coming in of any one out of the family, increases the asthma and attendant palpitation. For a month or more before the attack there is great lassitude and depression of spirits, together with a paleness and slight headache. After the attack passes I look and feel as if 'materialized,' and it is some weeks before I recover my general health—hardly till another attack.

"I am not subject to 'cold in the head;' my colds are more upon the lungs.

"The exciting causes of 'hay-fever' never so affect me at any other season; close atmosphere or overheated rooms never affect me. If my eyes are not too weak, I can always read; as I can not talk, I so divert myself.

"Attacks not modified by pregnancy in any perceptible degree. I never had the disease during nursing, except to a slight degree with the first and third child—then mostly in the head; with the last not at all. Does that necessarily imply that they will inherit the disease? They were born in the months of November, January, February, and April. I can breathe better in cool, dry days; thunder-storms and moist weather increase the asthma; city or country makes no difference. The quickest and surest relief is Bethlehem. This (Bethlehem) is the only elevated region I ever tried; and having come before the time for the attack, I can not say whether it would have given immediate or gradual relief. I stayed here till past the time for its disappearance last year, and had no sooner taken the cars than the head symptoms came on with violence, and I suffered the whole day—the journey home taking that time. This is the second year at the White Mountains, and I have escaped. I have never tried an ocean voyage, but a trip around the lakes caused a temporary intermission. I have never been in Europe. I tried Watch Hill one year, but had it severely there; Madison and Indian Neck, but was not wholly free—rather, did not get relief. I was in Mississippi one year, and though I luxuriated in roses and new-mown hay, I did not once sneeze. When I left there, the 3d of July, the 'season' was past, but on going up to Chicago I had the whole disease as usual. I had the disease the same in New York as in Hartford; indeed, the attack was induced by a ride to

the Park one year; and the next year, though residing at the Everett House, and having rooms fronting Union Square, I had only very slight touches of the malady—to be sure, I was nursing my first child at the time.

“Since writing this I have taken a tramp in the woods, which brought on my cold, and it has troubled me about twenty-four hours—entirely head symptoms, with a little ‘hot feeling in the throat,’ but it seems to be decreasing, and will probably leave.

“The new-cut and wilted hay is my special bane, as it produces asthma. So soon as the lawns are cut comes the ‘hot feeling’ in my throat, and my chest is heavy. So I have come away before the time for it, as I am so ill as to be wholly unable to travel when once it is fairly established. I suppose one might as well ‘die of a rose, in an aromatic pain,’ as in any other way; but one does not feel quite willing to, after all. The ages of my children are—eleven down to six; they have not yet shown a tendency to this disease, and I hope it may die with me. The second, ten, has during the last two seasons complained a little of the flowers in the greenhouse being ‘too sweet,’ but nothing more. She has suffered acutely the last year with neuralgia in the head.

“The second cutting of the hay in August does not affect me at all; and last year the effects of my unpleasant journey home passed off in four or five days, though the whole vicinity was filled with hay.

“In general terms, the malady might be called ‘herbophobia;’ but while it is in progress a more appropriate name would be ‘omniphobia.’”

Case of Mrs. H. H. B., Hatfield, Mass. :

“Forty-nine years of age. No relative nearer than second cousin has this disease. Nervous-sanguine temperament. Attack comes on about June 1st; it varies one week. Have been a sufferer twenty-six years. Have both cough and asthma, and they come on at the commencement; am worse by night. The smell of roses and new-mown hay excites the paroxysms. The disease disappears about the 16th of July. Mental trouble aggravates the disease. At the sea-side I find immediate relief.

“I will say that my experience from a child has been always a complete nervous prostration during the continuance of thunder-storms, and my feelings and symptoms always have been similar to those experienced during the paroxysms of asthma.”

The symptom of nervous prostration before and during thunder-storms is one that I have observed in a number of individuals. The tendency, like every other tendency, good or bad, is hereditary. This nervous debility is sometimes accompanied by headache, vomiting, and convulsions. Those who are afflicted in this way usually, if not always, have a

dread of lightning—hence the term *astraphobia* which I have elsewhere applied to it.*

A lady of Hartford, Connecticut, gives the following account of her experience with the early form :

“There is no cough or asthma. Attack comes on the last week in May or first of June. If vegetation is later, the ‘cold’ is later ; it seems to wait for the cutting of grass. I have suffered eight years or more. During a rain or thick fog and a short time after the rain, while the air is clear, perhaps half a day after the rain, I am better ; I went once to Saybrook the last week in June, and arrived there in a thick fog and rain ; I was relieved almost immediately. The same weather continued four or five days, and I thought salt air had cured me ; but when the sun came out the ‘cold’ returned. Much worse immediately after rising in the morning. If I allowed the night air in my room, it would be bad at night. It is worse in the evening than in the afternoon. Sometimes it is bad till about 11 A.M., and almost disappears in the afternoon. I have only once been consciously affected by roses—that was in a room full of them, and when my cold was pretty bad. When the cold is fully developed, walking from the shade of a tree to the sunshine, or from sunshine to shade, or a breeze or current of air striking me. I wear thicker clothing with comfort than I could at that time of the year if I did not have the cold. The disease disappears about the middle of July. I have always had occasional headaches—generally sick-headaches. Have had a good many sick-headaches from indigestion. I am annoyed by drumming or scraping sounds at times. I have been sometimes quite nervous, but from ill-health. I found some relief at Watch Hill. Came last year to Bethlehem when my cold was bad, and found some relief at first ; but about the second week in July the hay was made here, and my cold became as bad as ever, and kept on till after the time for it to stop at home ; so I took the cold home with me, and had only prolonged it two weeks by going to Bethlehem. When I left Bethlehem last year it was past the time for it to stop, and it disappeared gradually in a few days after reaching home.

“I left home this season before it was time for the cold, and came to Bethlehem. I have not had the cold at all until this morning, when I took a walk in the woods, and had the cold during the walk, and for an hour or two after returning to the house. We went by some hay ; but that did not seem to be the cause, or at least not wholly. I think I may have the cold here if I stay after the middle of July.”

Mrs. E—— has both cough and asthma :

* Beard and Rockwell’s “Medical and Surgical Electricity,” 1st edition, p. 605.

“Between thirty and forty years of age. Naturally not at all nervous—very sanguine; but after fifteen years of rose cold nerves were a little shattered. The attack comes on the 1st of June, almost precisely; sometimes a variation of a day or so, according to advancement or tardiness of season. Have been a sufferer fifteen years. Have both cough and asthma. Perhaps there is a little languor during the week previous—not longer. When first attacked had been cruelly overdosed by quinine for ague of five years’ standing; the ague was cured, but the first summer after began the ‘rose cold.’ Four or five summers visited the sea-side, and with great relief. This last spring went South, but found trees, etc., in bloom, which brought on the disease. Went from place to place, hoping to get rid of it, but did not; until coming back home it soon left me, until the proper time, when it reappeared as usual. For the first time, this summer used phosphorus homœopathically, and for this particular difficulty, with great success.”

The reporter of this case adds: “The lady states that on the occasion of taking the overdoses of quinine mentioned she took in forty-eight hours 240 grains.”

The case of Mrs. F——, of Brooklyn, New York, is interesting from the fact that she did not have the attacks while in North Carolina:

“Forty-five years of age; sanguine temperament. Attack comes on in middle of May. For the last nine years have been a sufferer; before that time, only when I was in Brooklyn, on a visit from the South. The attacks have not been so bad for the last two or three years as in the two previous years. No cough or asthma. Worse by day; scarcely have it at night. Going out in the sun and air excites the paroxysms. Middle of July the disease disappears; this year, it was continued till the last of July by my being among the mountains. Catskill Mountains did not relieve me. Lived in North Carolina twenty years; do not think I had it there, but when I came to Brooklyn would have it.”

In the following case of the early form there was both cough and asthma; but the disease extended into the middle form:

“Female; thirty-six years of age; married; housewife. Mother had hay-fever after birth of last child; oldest brother also has it. Nervous temperament. Attack comes on about June 1st; nearly same time every year. Twenty years have been a sufferer. Attacks not so severe as they used to be. Intermissions are now more than formerly. More cough than asthma; but have both. Roses, hay, and draughts of air most fre-

quently excite the paroxysms. Disease disappears August 1st. Do not notice any change in general health. Have some attacks in a mild form in the winter. Used to have neuralgia while nursing children. Whisky has been of great benefit during the paroxysms. Have had the disease much less severe than formerly—seems to be wearing away.

“One summer during pregnancy the disease was very much worse, lasting until confinement quite late in the fall.”

Case of M. L. B., 241 Carroll Street, Brooklyn, N. Y. :

“Female ; thirty years of age ; married. Attack varies from the 5th to the 15th of June. When coming on, only troubles in the morning for the first week, going off in the middle of the day. Have with it both cough and asthma. To be out in the sun and indigestion produce asthma. Disappears about six weeks from time of attack. Always great depression, and feel irritable during attack. At Fire Island was very much relieved, but not entirely, the second day. Had rose cold in Switzerland, but not as bad. Have traveled a good deal in Europe ; got rid of it in Chamonix. This attack was of shorter duration (four weeks).”

As I understand the above case, the early form appeared in Switzerland, and lasted four weeks.

An example of the middle form of the disease, or July cold, extending into the later form, is the following case of Harriet Clarke, Elmira, New York :

“Bilious temperament. The attack comes on in the month of July. Have suffered three years. Have cough, but no asthma. As soon as frost appears the disease is overcome. Sick-headache all my life, dyspepsia, much sleeplessness, palpitation of heart, nervous exhaustion, low spirits. The disease has been manifested since change of life. Hydrocyanic acid and morphine for cough, and quinine have relieved.

“I never have the discharge from eyes and nose peculiar to the disease, but a dry, stuffed, and painful feeling in the nasal membrane, without any moisture from those parts. The sense of smell is wholly gone during the period of attack ; taste is impaired, and appetite very indifferent. My sight is poor as long as I have the disease.”

Elmira, the residence of the patient whose symptoms are described above, is situated on that portion of the New York plateau which has been supposed to be exempt.

The following case of the middle form, or July cold, is from Canada, where the disease was not supposed to exist :

“F. L., Ottawa, Canada ; male ; sixty years of age ; married ; officer in civil service. Never heard of any of my relations having it. Have been

told that I am sanguine-nervous temperament, which is that also of my one brother and six sisters, living. Attack comes on during first half of month of July, generally about tenth day. Can recollect having it when a boy in England. Went to the West Indies at the age of fifteen; never had it there; on returning to England in 1839 had it again, and every year since in this country up to 1868. Used to culminate in spasmodic asthma. No difference by night or day. New hay and the smell of roses excite the paroxysms. Used to last with me about two weeks. Never was troubled after July; used to dread the approach of that month on account of complaint. Usually felt depressed and great lassitude a few days before attack; appetite and digestion not affected; at all other times have enjoyed and am now in excellent health."

The above case was not native to Canada, and disappeared by long residence there.

An example of the middle form of the disease is the following case of John D. Murphy:

"Twenty-one years of age; single; clerk. Mother died of consumption. Nervous temperament. Attack comes on 1st of July. About same time. Have suffered three years. The course of the disease is very uniform. Have both cough and asthma. In-door dust, and handling peaches, especially if they are 'fuzzy,' always excites an attack. Disease disappears with frost. Dust excites an attack in winter."

Another example of the middle form is the following. The patient, Mrs. Sarah L. Woodward, is a resident of West Killingly, Connecticut:

"Forty-three years of age. One sister has the disease. Nervo-lymphatic temperament. Attack comes on July 1st. Nearly same time every year. Have been a sufferer twelve years. Have both cough and asthma. Am worse by day. Heat and dust most frequently excite the paroxysms. Disease disappears from the first to the middle of August."

The early and middle forms may interchange, as in the following case:

A married lady of middle life, residing in Brooklyn, of a nervous temperament, is attacked in July, sometimes in June. Last year she had asthma. Has suffered in all four years. She is worse by night, and the paroxysms are brought on by flowers. The latter part of July, or later, the disease disappears. The attacks are made worse by anxiety. All her life she has been a sufferer from sick-headache, neuralgia, and rheumatism. Since the coming on of hay-fever there has been less sick-headache and rheumatism.

Mr. Francis Galton has lately shown, in his remarkable paper on "Twins," that they have, in some cases, precisely similar diseases. He brings forward these facts to confirm his position that the great thing in life is inheritance; that the inborn tendencies of the constitution triumph over all the influences of education, culture, and general environment. Twins who are widely separated geographically and by circumstances may yet have the same morbid symptoms appear at the same time.

The following cases were not twins, but were own sisters; and the gentleman who gives me the history of one of them says that they "have been almost equal sufferers for the last ten or fifteen years."

The cases are also of interest because they represent the middle form of hay-fever, between rose or June cold on the one side, and autumnal catarrh—a disease which, in harmony with the common nomenclature, might be called July fever.

Both sisters were of the nervous temperament. In both the attack came on about July 1st. There were distinct intermissions in the attacks, which varied in severity different years. Both had cough and asthma, which came on at the middle of the attack, and both were worse by day. In both cases heat and dust excited the paroxysms. Both sisters were troubled with sleeplessness, palpitation of the heart, and nervous exhaustion. In both cases the disease disappeared between August 1st and 13th.

The following case of the Rev. W. H. Fish, of South Scituate, Massachusetts, illustrates that the early form may extend into the later:

"When the hot weather commences, usually in June, especially if dry and dusty, my eyes begin to itch most annoyingly, my nose to run freely with water, so that I need several handkerchiefs in a day, and I sneeze with great frequency. But all this, though unpleasant enough, is endurable compared with the sequel later in the season. About the middle of August, sometimes later, my difficulty of breathing begins, and I have several days and nights of asthma."

Mr. Fish also sends the following letter:

"MY DEAR SIR,—An immediate absence from home, after receiving

your circular, and which has been continued till within a day or two, prevented my earlier attention to it, and now I have not the leisure to fill it out as I would. I left here the last week in August, just as my 'hay-fever' was coming on, for Central Illinois, and though I *feared*, I still hoped that the change of air might be favorable to me. And while on Long Island Sound and the Hudson River I found it to be so; but in Central New York, where I stopped a few days, my malady returned, and my nights were almost sleepless from the difficulty—asthmatic and other—of breathing. But I was told that in Chicago I should find relief, if not entire exemption, and so I pushed forward toward the desired haven; but found it impossible to get beyond Buffalo by rail, and so took to the lakes, on which, for the five days it took to reach Chicago, I was quite comfortable, and slept well at night. On arriving at Mackinaw I learned that the hotels there were filled with 'hay-fever' victims, some of whom had even fled from Chicago, and that, of course, greatly discouraged me; but I only had one bad night there, and for three weeks kept very comfortable. But on going down to Central Illinois, even after two or three considerable frosts, for which I had been waiting, I was again troubled as much as before, and for a day or two very badly.

"I had been warned before going down there that the 'ragweed-fever,' as it is there called, was very prevalent, but others assured me that I should probably be safe—it was so late in the season; yet I soon began to breathe with more difficulty, and the first day of my being there I had one of the most violent attacks of asthma that I have ever had. I sent for the physician of the place, who is himself subject to the disease—if it can be called disease—and his various remedies, such as 'Kidder's Pastilles,' 'Farnham's Asthma Cure,' etc., failed to have the least effect upon me, and I suffered so severely that he resorted to chloroform, and to injecting morphine into my arm, in order to afford me relief, which had the desired effect; after which I began to amend, but soon hastened back to Chicago, where again I was entirely free—almost, except occasional paroxysms of coughing, generally brought on by overtalking or exercise—particularly by going up-stairs quickly.

"I did not have much of what some call the 'dry asthma,' but my bronchial tubes, if not my lungs, seemed to be full of mucus, and after expectoration, often very difficult and weakening, I always feel much better. Sometimes I could hardly walk across a room without assistance, or use my voice freely in private conversation without bringing on a paroxysm of coughing."

In the following case the early form seemed to run into the middle form, but did not extend beyond that:

"A lady and her two daughters are afflicted with hay-fever. All are of the nervo-sanguine temperament. In the case of the mother the at-

tacks come on in May, and last as long as there are flowers. She has mild attacks at any season of the year when she smells flowers.

"In the case of one of the daughters, the attacks come on any time between June and September, varying several weeks. She has no cough or asthma, while her mother usually has asthma in the later stages. Roses and honeysuckles are especially obnoxious. A rose will make her sneeze even in the winter. The disease disappears the latter part of September.

"She has been accustomed to have headache, backache, and neuralgia, and is generally nervous. All her nervous symptoms have been worse since the hay-fever appeared."

Case of E. G. Ferris, Pekin, Tazewell County, Illinois :

"Forty-nine years of age; married; account and insurance agent. Nervo-bilious temperament. Begins anywhere from June to September. Varies months in its coming on. Continues till cold weather. Cinders worst—any dust bad; roses or other flowers, or hay, no effect; smoke very bad; gases bad; foul air bad; pollen of corn no effect; bright sunlight apt to bring on spasms of sneezing; camphor, hartshorn, or ether no decided effect; fruit no effect; dampness palliates; sudden chills and night-air bad effect; perfumes no effect; overexertion increases spasms; brimstone-matches bring on spasms; indigestion always present with hay-fever.

"Electricity, faradaic and galvanic; faradaic general treatment; galvanic, local, over frontal sinus and nostril seemed to keep disease in check while using.

"Resided in Chicago in the summer of 1864. Disease did not come on until I went to the country the last of August."

In the foregoing case the noteworthy feature is that the attacks come on any time from June to September. The patient was therefore liable to all the forms of hay-fever.

Now and then the early form may capriciously take the place of the later for a single season.

Mrs. Dr. Gilfillan, of Brooklyn, aged thirty-six, has been a sufferer from the later form for twenty years. Attack comes on August 29; but two years ago had an attack in June. She has been a great sufferer from sick-headache, neuralgia, and dyspepsia; is worse during pregnancy.

Mr. C. F. Bellows, of Boston, Massachusetts, has had the later form of hay-fever, and one year, as it seems, had both the early and later forms independently.

"Suffered more at the sea-side than at any other place.

"Three years ago I was at the sea-shore (Swampscott). Had the rose cold in June, and the hay-fever (later form) came on in August for the first time. The winter following had some very severe attacks of the asthma. The last two seasons I have passed a few weeks at the Twin-Mountain House successfully. Have had no attack of the asthma since. I avoid the hay-fever by going to the mountains."

Mrs. Francis Bacon, Bronxville, Westchester County, New York :

"Lymphatic temperament. Attack comes on about the 23d of August. Varies somewhat. Have suffered for thirty years past. Have both cough and asthma. Disease disappears about the 1st of October. It disappears before frost comes. The catarrh has frequently stopped an entire evening, while engaged in entertaining company, and has returned as soon as the excitement ceased.

"The worst attack I ever had was at S. Orange. My physician recommended me to go to New York and stand on the corner of West Street to get the foul air from the sewers. I went to the city and stayed a few days, during which time all my symptoms were greatly modified. But they returned with severity as soon as I went back to the country.

"I once had the June cold. It was brought on in a moment by inhaling the perfume of some exquisite roses presented to me while visiting a friend. The children brought them in in profusion—putting them in my hair, etc. All at once I began to sneeze, and all the frightful symptoms of hay-fever came on. Becoming aware of my imprudence, I dashed the roses away from me ; but it was too late, and I suffered for two days with a severe attack of rose cold."

The distinctive facts in the foregoing case are these :

1. The lymphatic temperament. This is quite unusual in hay-fever subjects. Possibly the patient may have erred in the diagnosis of her own temperament, for she admits that she has been at times a sufferer from dyspepsia and back-ache.
2. The cessation of the symptoms under mental diversion.
3. The relief of symptoms in the city.
4. The sudden attack of the early form of hay-fever on exposure to roses.

Case of Frank E. Fitz, Chelsea, Massachusetts :

"I inherit the cold from my father. Hay troubles me the year round, but flowers do not, only at certain seasons. I have both hay-fever (later

form) and rose cold. I am the only one in the family who has, except my father. I am stopping at Bethlehem during the summer, but I do not find entire relief as others do, but the attacks are less severe."

Mr. Fitz has been afflicted from birth. The attacks come on in June, and disappear between July and September; he therefore may be said to have all three forms.

Case of Henry Waters, Salem, Massachusetts:

"Ever since I can recollect I have had hay-fever. My mother had rose cold, which left her in her later years. Asthma some years very bad; other years slight. Asthma worse at night. Better in cool weather; worse in muggy weather—sticky, damp days. Begins August 17 to 20. Ends September 25 to 30. Depends on the weather. Have slight attacks very early in the season. Am not subject to cold in the head. Better by northeast wind from the sea. Snuffing up quinine does no good. Was relieved at Halifax, and Eastport, Maine. Returns in full force when I return home. Feel better shut up in a dark room. Down cellar is the best place. Excited by barley, cinders, out-door and in-door dust, rag-weed. I had it in North Carolina."

A combination of the later and early form is the case of Dr. G. S. Dusenbury, Le Raysville, Pennsylvania.

"Mother is similarly afflicted. Nervo-bilious temperament. The attack comes on middle of August; and also have rose cold in hay and flower time. The disease disappears when frost comes usually. This year it disappeared suddenly before frost came. In company must sometimes go out and have a sneezing-spell. Have had sick-headache during an attack of hay-fever. Was attending many cases of typhoid-fever. I was first attacked one morning on being called out very early; first symptom was intense burning pain in frontal sinus. A local application of *Phenol sodique* relieved me at once one year. A keg of ale taken before the attack was of service.

"Am now never able to curry a horse. If I do so, all the symptoms of hay-fever come on at any season of the year. The attack will last several hours. Morphine always relieves me as long as the effect of the opiate is felt. This fact I found out by accident, while using the morphine to relieve my sick-headache. When I have the disease I am chilly, and very susceptible to cold; want to sit by the fire."

A person who is half sick all the year, who lives always on a low plane of physical existence, passing no day free from pain or discomfort, would be less likely to notice any special depression prior to the attacks than those whose usual state

is that of absolute health. I am inclined to the belief that those hay-fever sufferers who observe symptoms of debility prior to the coming on of the nasal and other symptoms are those who are otherwise healthy and strong, although they may have the nervous temperament.

The following case of Mr. George W. Adams, of Brooklyn, N. Y., may be regarded as an illustration of this theory:

"Thirty-two years of age. Merchant. Can not learn of a single instance in the family on either side. My father was afflicted with nasal catarrh for a number of years. Father, bilious; his family same. Mother, nervous-sanguine; her family same, with inclination to bilious. Nervous-sanguine temperament. Attack comes on about August 20. It varies a day or two either way. I have suffered twenty-five years. Anxiety, tending to mental depression, seems to increase the trouble; but no other form of mental excitement seems to have any effect either way. Have observed premonitory symptoms of a nervous character, such as sleeplessness and lethargic dullness, 'vague pains,' etc., and a sort of debilitated feeling, for two or three weeks previous to the commencement of the attack. Being very careful in regard to diet, and generally regular in my habits, do not observe the disturbance mentioned in the digestive organs. I sometimes have what I call 'intimations' of hay-fever in the winter. They only last a few hours, and are irregular. My health in every other respect is excellent. Though not robust or strong, have never had a severe sickness of any kind since boyhood. Have tried local application of sulph. quinine in proportion of one part to 700 of water, both alone and with the internal application of quinine in pills. Felt worse for using both, and received no benefit from the wash alone. During the early part of my trouble it was always rose cold in June; later it was hay-fever (later form); then I had both for eight years, and then a change of residence from Boston to New York, after two attacks in New York, seemed to break up the rose cold. For three years last past have only had hay-fever (later form).

"There are four cases on our block in Brooklyn, including my own."

The query has occurred to me whether the premonitory symptoms of lassitude, sleeplessness, etc., are not experienced in many cases where they are not observed, until attention is called to them.

The late W. C. Roberts, M.D., a scholarly and eminent physician, was a victim of the later form of hay-fever, and has given the following very graphic picture of his suffer-

ings. The account is taken from the *New York Medical Gazette*.

“Sweating as I do so profusely during the summer months, and until then freely exposing myself to draughts without the slightest inconvenience, and rarely catching or suffering from colds at any other time, winter or summer—no sooner do the nights in August begin to grow chilly, and my relaxed cutaneous surface and sudoriferous tubes become refrigerated and contracted, say about the 20th, then my eyes begin to itch and stream, my nose to run and ‘crow like chanticleer,’ and my lungs to heave and whistle like those of a ‘broken-winded horse.’ I become the victim of a ‘crying cold,’ which I well know is to last me for a month, or more, with little or no abatement; with slight temporary remissions only, which, if I were not taught by long experience to know that they are fallacious, might raise in me delusive hopes of amendment. But in the very midst of my self-congratulations, after a few hours of comparative ease, some little imp, straight from Tartarus, plunges into the inner canthus of my eyes a white-hot needle, and tickles my nostrils; instantly they become suffused with scalding tears, which deluge my spectacles; a dozen or more sneezes follow in rapid and apparently ceaseless succession; a profuse sweat follows; streams of clear mucus flow from my nostrils upon my book or paper, and half-a-dozen handkerchiefs are at once called into requisition; an interval, more or less long, occurs, after which the paroxysm is repeated; and so it goes on, day after day, and hour after hour, until the disease has run its appointed course, and subsides, like a partnership, by its own limitation. During all this time weak and rather sore eyes, an itching and running nose, stuffing of the nasal passages, occasional violent fits of sneezing, headache, weariness and indolence of mind and body, a general feeling of good-for-nothingness; distaste of and unfitness for society, and an inability to look people in the face; cough and asthmatic wheezings, and a cold and clammy moisture, are the concomitants of my unhappy condition. Draughts of air are intolerable, and increase my catarrh; the very waving of a fan annoys me; such is the susceptibility of my skin that the application of a cold, wet part of a soiled handkerchief to my face irritates me. Another petty misery is the excessive coldness of the end of my nose, sensible to myself and to others, who are kind enough always to inform me that it is like a dog’s. I have not seen this symptom, which I look upon as *the* pathognomonic one, mentioned by others, and I desire to have due credit awarded me for the discovery. It is amazing with what suddenness and rapidity the congestion of the Schneiderian membrane occurs—sometimes on one side, sometimes on the other; a little itching in the nostrils, and, presto! the sneezing begins, the stream issues, and the eyes follow suit. It is needless to say that I am never without a handkerchief to my nose, and two or three in my pockets; and I relay them, as postilions do their horses, spreading one out to dry while another is in use. Light does not

annoy me, *per se*, as it does the wife of one of my *confrères*, a fellow-sufferer, who has a true photophobia, and has to have the room darkened; and in this respect I should do well enough, were it not for the weeping and irritability of my eyes, which keeps me wiping them constantly, winking and blinking, like a cat in the sun. But my cross in life is DUST—I print it in capitals. So surely as I go out at midday into one of our large thoroughfares, which has not been recently watered, or ride in a dusty railroad car, etc., so surely does every particle of dust make straight for my canthi, with the effect of a grain of cayenne-pepper; and for the rest of that day closed itching eyes, a darkened room, snuffling and sneezing, and an irritable temper are my portion. I pray for rain with all the fervor of the old Scotch clergyman, without caring whether or not it should eventuate in a deluge.

“If, in my walks, I see men sweeping a street, and clouds of dust arising, I shun it as I would a rattlesnake; and if I see a building in process of demolition, I go a block out of the way to avoid it. I always walk on the shady side of the street, if there is one, and select a well-watered street if possible, or keep well to windward. I can not begin to express the agony which on certain occasions of my life I have suffered from this cause, and therefore I confine myself within doors as much as possible. Dust and draughts are my particular aversions. I could not smell a rose or eat a peach unpeeled, the hairs of which irritate my fauces (and, by this way, I now think that my catarrh does come in peach time, which may have something to do with it); nor inhale ipecac; and snuff, I believe, would make me sneeze my head off. Nothing that I have ever snuffed up my nostrils has failed to injure me; I once almost suffered suffocation from an astringent injection prepared for me by a druggist friend.

“Now that the days are getting equably cool (September 23), and I perspire less, I am getting better, although some catarrhal symptoms still remain, and I shall soon recover *in toto* from a comparatively mild attack, if I can indeed avoid sweating chills and dust a little longer. I think the disease, with each successive year, abates in duration and severity. One word more as to treatment. It is strange that opium acts so differently on different people; in some proving a godsend; and in others, especially females, a poison. An opium dragée puts me into a quiet sleep and gentle perspiration for the whole night, without unpleasant effects the next morning. The effects of chloroform are very pleasant at the time, but the next day I have headache and nausea, and loathe the smell of it, and can not keep the bottle in the room. As the disease is clearly the result of nervous irritation, and occurs spasmodically and paroxysmally, tonics (iron and quinine), nervines (bromid. potass., valerianate of ammonia, asafoetida), and sedatives (opium, hyoscyamus, belladonna) ought, on theoretical grounds, to do good, are indicated, and might be tried, together with hygienic means. I can not see that antiperiodics are especially indicated. If there were any truth in the *similia similibus* doctrine,

and any virtue in infinitesimal doses, hydriodate of potassium ought to prove certainly efficacious ; for, once in my life, and only that once, I saw it produce in a man as bad a 'crying cold' as I ever had at any period of my autumn catarrh."*

The following case is extraordinary in that the *eruption on the face* seems to take the place of the usual symptoms in the nose :

"PHELPS, N. Y., *November 19th, 1874.*

"I lately noticed in some country paper your call for the address of those who are suffering from hay-fever. For the last ten or twelve years I have been sick for two or three months every summer, commencing from the 20th to the 25th of August, and lasting always till cold weather. I have not known what to call the disease, until this summer several physicians have pronounced it hay-fever. My trouble is chiefly in my face. When it commences my face will become hot, and little pimples, with sharp, stinging pains, will appear, and they will spread until my whole face becomes swollen, much inflamed, and very red ; and, after a while, the skin will crack, and very freely discharge a yellowish fluid, when the inflammation will somewhat subside. This process is repeated several times during the season. A towel wet in hot water and laid upon my face affords me most relief of any thing I have ever tried. After packing in hot water, the best application I have found is the white of an egg evenly spread over my face. Sometimes, when I have used external applications, it has driven it from my face and sent it to my lungs, when I have had the asthma terribly ; so I am very careful what I put upon my face. I should have written sooner if my eyes would have permitted it, and at last I'm compelled to write by the hand of another.

"Bright sun or gas light I can't bear when my face is in trouble. There are times when my face seems so much better that I feel as if I should soon be well—and then I will have another splurge !

"In early life I had asthma ; and my daughter also until she was twenty years of age.

"Before the attack I suffer from nervous depression and sleeplessness ; my health otherwise is good. Cold weather is the surest relief. I have suffered in this way twelve or fourteen years every fall between August 20th and the coming of cold weather."

That the above is a case of the later form of hay-fever

* In connection with the instances of susceptibility to various substances, cited by Dr. Roberts, consult pp. 107-109.

Dr. Dupuy, of New York, informs me that Dr. Brown-Sequard stated in 1869 to the Société de Biologie that if he touched a piece of chocolate to the side of his tongue, the face on that side at once became red, hot, and covered with perspiration.

there can be no question. It is clear that the eruption (eczema) of the face takes the place of the usual trouble in the nose and eyes.

This case is doubly interesting. First of all as a fact against the theory that the symptoms of hay-fever are excited by infusoria in the nasal passages. Here the eyes and nasal passages are not affected, and no one would claim that infusoria on the face would give rise to the eruption.

Secondly, the case is suggestive to those students of diseases of the skin who are now pointing out the relation of eczema, prurigo, etc., to the nervous system.*

Case of Professor Frederick D. Allen, of Cincinnati, Ohio :

"Have the following symptoms : *Discharge* from nose—at first watery, then thicker, continuing all the time of the disease. *Itching* of tongue, throat, roof of mouth, nasal passages. Roof of mouth inflamed and swollen. *Sneezing* violent and prolonged, especially in earlier stages.

"*Eyes* sore and inflamed, hot and bloodshot—very painful. This symptom especially in early stages.

"*Asthma*—the chief symptom of all—so bad that I care little for the rest. Very severe ; comes on early, lasts without interruption (though worse in paroxysms) for about two weeks ; reappears after that time *whenever it rains* for some three weeks longer.

"*Cough* appears later than asthma, and lasts after the asthma has gone. Most severe about third week ; violent fits ; can not speak without coughing ; cylindrical bits of mucus raised ; disappears gradually during October.

"*Stuffing of nostrils* in all stages—worse toward end ; worst at night ; often can not sleep ; the last symptom to disappear ; lasts in decreasing severity all the autumn. Loss of flesh and strength.

"About the middle of August the first sign of the attack comes on ; asthma sets in about the 20th.

"Have had *sick-headache* often for twelve years past ; worst in spring ; am freest from it in autumn and winter, but this may be attributable to the relief from mental labor afforded by summer vacation.

"Had temporary *paralysis* of one side of face when sixteen years old. It lasted a fortnight, passed away, and has never returned. Cause unknown.

"I had the disease twice in Knoxville, Tennessee, where I was residing—at about 1000 feet elevation, and surrounded by mountains. Crossed the

* See Dr. L. D. Bulkley's excellent papers on this subject in the "Archives of Electrology and Neurology for 1874."

Atlantic twice during catarrhal period, and was entirely free from every symptom. Resided two years in Germany, and had no sign whatever of the disease. Had it twice in Tennessee; never escaped it there.

"In 1871, while the disease was disappearing (in September), I had for the first time an attack of neuralgia of sciatic nerve. The attacks came intermittingly and irregularly; lasted till December—very severe for a time. The next year the attack came some weeks after the catarrh was over, was less severe, and left me in January or February. The third year the neuralgia came on earlier (in June), lasted through the time of the 'hay-fever' (being less severe during that period), and was very bad just after the catarrhal period; left me about November 1st. This year it began early in August, troubled me some while at the White Mountains, and is now rather painful, though apparently disappearing. The longest and worst attack was last year—four months. A physician has suggested to me that there might be a connection between this pain and the 'autumnal catarrh.' For myself I do not feel certain. The pain is always in left thigh, comes and goes with the most whimsical irregularity; is sometimes slight and sometimes very severe, and is always less severe when I am lying down. I have had slight accessions of this pain at all times of the year besides the periods mentioned, but it is trifling, and passes away immediately."

A lawyer of Cincinnati, Ohio, gives the following report of the origin of his sufferings:

"As a further answer to question 32: During convalescence in September, after an attack of fever of a typhoidal type lasting through August, two years before hay-fever developed itself, I observed a tendency to sneeze on exposure to draughts of air. This was stopped by putting on a thick coat and keeping out of draughts, and gave no annoyance. Late in August of the next year, one single fit of sneezing—all within the limit of one half-hour, occurring on a railroad ride of one hour in length—of furious violence, and so prolonged as to be a chief part of my occupation during the trip, and followed, I believe, by a few hours of slight hoarseness, was also noticeable. The next year the hay-fever was developed. I have suspected that this typhoid-fever, with possibly the veratrum which reduced it, had something to do with preparing my system to receive the hay-fever.

"Of late years the paroxysms of sneezing are very rasping to the throat, rapidly produce some hoarseness, and seem to make it less easy than usual to draw full breaths for some time. The eyes are red and suffused, the nose somewhat red, the feelings and countenance dismal; and an indescribable feeling of discomfort and depression is all through the head, and apparently through the whole nervous system."

The following case of Mary R. Holbrook was contributed by Dr. A. Mead Edwards, of Newark, New Jersey:

"Nervous temperament decidedly. Seems like something swollen at base of nose, something which the douche does not reach. Water runs from the nose suddenly in large quantities; voice often affected so that she can not speak above a whisper for an hour at a time. Symptoms worse during eating; can not speak then; can only breathe with the mouth open; has to sleep so. The discharge is always watery, never becomes thick. Very often, when symptoms are worst and douche is used, especially in the morning, there comes away from the nose a mass of light-brown colored matter, looking like sponge in color and texture, and about as large as the end of the little finger. She can not sleep when there is the slightest air stirring, or even if she imagines there is, and when no one else can observe any. The air may blow upon every part of the head, and she is not affected; but if it blow upon the nose, the symptoms are at once aggravated, even in the warmest weather, so that she suffers greatly from the heat, not being able to be in a room with the windows open. When the symptoms are at the worst, she sneezes very often and very hard, but in the daytime only. She loses her appetite, and about the third to the fourth week of attack she has a high fever. The attack comes on in the last week in August; can not say as to the day or hour, but always in the latter part of August. Five years ago noticed it for the first time. Mental worry and fatigue and draught, when no one else would be conscious of it, excite the paroxysms. Dampness or foginess make the symptoms worse. The least draught affects them worst of all. One year the disease kept on until Christmas; last year it lasted only one month; this year she has it still (November 10th). Sage's Catarrh Remedy, and quinine in douche and internally, seemed to relieve up to a certain point.

"Whenever an attack is dreaded, on account of presence of strangers, it is always worse; personal surroundings decidedly affect the disease. At times the disease seems to come to a climax; gets much worse; she becomes very hoarse. This lasts for a short time, and then she is much better, thinking she is going to have no more, but all the symptoms return soon after. When she is very bad, if the feet are heated the symptoms are better.

"P. S.—A few days after I had filled out the above, I received the following from my patient:

"'I do not know to what it is to be attributed, but I have hay-fever very badly to-day, worse than for a month before, and can fully indorse the statement that it impairs my intellectual faculties. It makes me feel so badly that I would rather be in bed than anywhere else; and half the time this A.M. I have not been able to speak audibly.'"

Case of J. L. Worth, of New York:

He has the later form. The symptoms come on any time between August and January, and disappear about three weeks subsequently.

There is some cough. The paroxysms are excited by out-door dust, gas, foul air, and indigestion. He has been a sufferer since infancy. He finds the surest relief by the salt water. He says: "I was relieved entirely by a change of residence from the city to the banks of the East River for thirteen years, and took the disease again on moving back."

The following case of Thomas A. Carruth, Welborne, Florida, is unusual in the lateness of the appearance of the symptoms, and in the fact that they prevail in the South, although induced while on a trip to the North:

"Nervous-sanguine temperament. Commences with nasal irritation and watery discharges, which within twenty-four hours seem to have almost closed up the cavities of the nose. Breathing is hard and difficult, especially at night, and attended with dry cough for several days until the expectoration commences, which is usually very copious after, say ten days; and this cough and expectoration usually continue at least a month after the other symptoms have subsided. The attack comes on about the 1st of September. Have been a sufferer for five years.

"The first attack was brought on during a trip by rail from here to New York, and seemed to be induced by the *dust*; and for three years regularly the same thing occurred. Last year I did not go North, but had the attack in Savannah, Georgia. The *asthma* was very slight in comparison with what it was before. This year I have had it at home with same symptoms—*slight* asthma, but some cough. Have not noticed the effects produced by other causes; almost any of those mentioned in your circular will increase the severity of the paroxysms. The disease disappears about November 1st."

Another Southern case is that of Dr. James A. Hayes, of Union Springs, Alabama:

"Begins with mild form of catarrh, gradually increasing in severity; attended with almost constant sneezing, increased by exercise. No fever, no cough of consequence, no marked difficulty of respiration. The discharge increasing from acme of the disease to its subsidence. Attacks last from a month to six weeks, beginning usually about the 1st of September. Varies somewhat, owing, as I have thought, to the condition of the atmosphere. Every year since I can recollect I have suffered. A good frost appears to have the effect of causing its disappearance.

"Hay-asthma is rare on this parallel. Don't know of any case than this above reported."

The following is from a lady in the South—one of the Gulf States. It is a case of unusual interest:

"I was forty-six years old April 22, 1874. For a year I have been

principal of a girls' seminary. Before that I lived on my income, spending much time in reading and study. I have no kinsmen or kinswomen who have ever had hay-fever that I know of. My mother's family, who came from Virginia, were, I am told, subject to consumption, but lost the tendency in Middle Georgia. I have no brothers or sisters. My maternal cousins are of nervo-sanguine temperament. Two cousins have had (not hay) asthma. I think two seem to have a tendency to hay-fever. My temperament is nervo-sanguine-lymphatic, with small portion bilious. Hay-fever came on violently with me at the period called 'change of life.' The first attack was in 1869. For some years previous to that, however (about five years), I was in the fall of the year subject to sneezing attacks at the period of menstruation. I did not notice the conjunction until afterward, however. The spring before my attack I caught violent cold at the period of menstruation, and did not get strong before hot weather came, debilitating me. After that, during the same year, I had the attacks of sneezing all summer at the monthly period. Once I escaped, but had a bilious attack. Again, the middle of August I had at the menstrual period an inflammation of the mucous membrane of the rectum, and then I had no sneezing. But as soon as I got well of this, regular hay-fever set in, with itching of the eyes, violent sneezing, and asthma, and lasted continuously till frost. It was very violent. There were two bad hay-fever cases among my neighbors, and the same physician seeing us, said my attack was the worst. That winter, whenever the menstrual period returned, I was liable to sneezing attacks again. The next summer I went to a hay-fever resort, and have never failed to do so every fall since. I have constantly got better and less liable, though I never have failed to have unmistakable symptoms in September. This summer, at Cæsar's Head, South Carolina, I was a large part of September perfectly well. Once an attack was brought on by imprudence which would not have affected me at any other season. I came from Cæsar's Head September 29, and on my way down, and in Greenville, South Carolina, I had slight but unmistakable symptoms. I had no irregularity in menstruation until after I had had hay-fever once; about six months after I had some irregularity. I had a return of menstruation three months ago, the period recurring monthly several times; but I hope it has entirely ceased. I have suffered with the 'hot and cold flashes' incident to change of life; the hot flash showing itself in a sudden and profuse perspiration, and after this (during the hay-fever season) I would sneeze. About six months after my first attack of hay-fever the tendency to sneeze at the menstrual period ceased, and I only suffered from it at the regular hay-fever season. When I have hay-fever, asthma comes on me earlier than with most patients of the kind, owing, it seems, to unsoundness of the bronchial tubes. It usually comes very early in September. But I have no asthma, except at the hay-fever season. Unfavorable circumstances, such as railroad travel, bring the disease on earlier, but the last week in August is my regular time. I fix the date at

August 20, 21, or 22. This applies to every year, except that of my first attack, of which I have given the history, and even in that year there was such a marked change that on August 22 I was so completely and utterly broken down that all the previous symptoms recorded were as nothing. I relate the symptoms occurring at the menstrual period before and after the hay-fever season of my first attack only as part of the history of the disease. They did not cause severe suffering. I never had itching of the eyes except during the hay-fever season. After the first attack I had catarrh for nearly two years, but the discharge was never at all offensive in smell. It was the gelatinous mucus peculiar to hay-fever. I am not affected by roses, flowers, fresh or old hay, pollen of corn, nor by sunlight (unless overheated from it), nor by gaslight; nor by camphor, hartshorn, ether, nor by fruit (except undried chinquapins and chestnuts), nor by perfume, nor (that I know) by Roman wormwood or sneeze-weed. Indigestion always makes me worse, and so does over-exertion. Sometimes the attack of hay-asthma commences with indigestion, and my kidneys are also affected. The sneezing attacks which accompanied menstruation were at all seasons accompanied with kidney affection. In fact, the first symptoms were deficient urine, dark colored, and leaving a red sediment. The disappearance of the disease is plainly related to frost *only as affecting vegetation*. If frost comes early, before the trees have reddened or dropped leaves, the disease leaves suddenly. If frost comes very late, so that vegetation dies gradually, the disease invariably returns. In speaking of places I have visited, it must be borne in mind my liability has constantly diminished. At Lookout Mountain, Georgia, I had such severe itching of the eyes and other symptoms that I hastened to Oakland, Maryland. I had much, but not entire relief there. I had a little hay-fever every evening. The next summer I was at Halifax, Nova Scotia. I had scarcely a symptom there. At the White Mountains (Twin-Mountain House) I had very little. The next summer I went to Ashville, North Carolina; but my eyes itched so I went to Cæsar's Head, South Carolina. I had a *very, very* light attack. I went the past summer again to Cæsar's Head, and was scarcely sick at all. As an indication of my decreased liability and the effect of the above places, I will say that the first summer I went away I left Oakland, Maryland, the last of October, and came to Georgia by sea from Baltimore, Maryland, to Savannah. There was no frost till November 16. The railroad journey from Savannah home revived the disease, and I had it slightly till frost. The next year I came to Savannah from Halifax, Nova Scotia, last of October. There was no frost in Georgia till about November 16, but I had no trace of it. I went from the White Mountains to Nova Scotia October 1st and 2d, and had a little asthma at Springfield, where I spent the night, but had none after reaching Nova Scotia. In 1873 I went from Cæsar's Head to Walhalla, South Carolina, October 1. I had asthma a little till October 10, when there was frost. In 1874 I went from Cæsar's Head to Greenville, September 29. I had *very, very* little asthma and sneezing for two

days, and then no more, though there was no frost. I have never tried any sea-coast except Halifax, Nova Scotia, as recorded. A sea-voyage gives perfect relief as soon as I get away from land."

These and other cases seem to show, if we may judge from a small number, that in the Southern States autumnal catarrh appears later than in the North, the first symptoms not coming on usually until about the first of September.

It will be observed also that none of the cases of the early or middle form are from the South. Is it possible that only the later form, and that very late, is found in that section of the country? One case of the middle form is reported from Washington, D. C.

Case of J. H. Ward, Louisville, Kentucky :

"Attorney at law. His father and mother were asthmatic. Nervous temperament. Attack comes on about 12th of August. When in same place on about same day. Have suffered about twenty-three years. Have both cough and asthma. Am worse by night. Rain most, then dust, and great exertion excite the paroxysms. Disease disappears about second week in October. I think it depends on coldness and dampness of season. Am not well until after frosts. Great excitement diminishes the disease. Was in the late war; battle or skirmish enabled me to get on tolerably well temporarily. I think I suffer from nervous depression before the attack some weeks; but it does not continue up to the time of attack. I am dyspeptic. Have imagined for last two or three years that I had mild attacks about time for 'rose cold.' Tried solution of quinine this summer for catarrh with good effect; not tried electricity. Have visited Lake Superior, Colorado, continent of Europe. Find the quickest and surest relief in Europe—in France, Germany, and Switzerland. In Europe almost immediate relief. In the other places named went before the attack, and was free from asthma, though had slight catarrh. Have been on Mount Washington and Rocky Mountains; but can't go out in early morning or at night if foggy. Have crossed to Europe—well both ways. Tried Nantucket Island—not well after 18th of September. Was in Alabama and Mississippi during the war—had the disease.

"There are perhaps one hundred persons who have the disease in some form in this city. I know many of them, and have met sufferers in traveling. From comparison of notes, I think I have more asthma than any of them. I notice too, that many sufferers, when in non-catarrhal regions, can act as though well and strong. I can't; if I do not bring on symptoms of disease, I become so nervous that I can't sleep. Have thus lost sleep from over-exercise for six nights at a time, and felt all the

time a certain stimulation, as though I had taken opium. I am sure my nerves are greatly excited during attack, or period when subject to attack."

Among the experiences of those who travel beyond the Mississippi are the following :

"ST. LOUIS, *January 24th, 1876.*

"My son was born in Lexington, Missouri, February 5, 1860. At the age of about eighteen months—that is to say, in September, 1861—he had an attack of what the attending physician pronounced 'acute bronchitis,' but what I am now satisfied was hay-fever. The following year, at about the same season, he had a similar attack, which we of course regarded as 'acute bronchitis,' and treated accordingly. The symptoms in both cases were profuse watery secretion from the eyes and nose, the eyes being inflamed and very sensitive to the light; almost constant sneezing during the first stages of the disease; increased debility as the disease progressed, attended with laborious respiration, as in asthma, and loss of appetite; and more or less fever, which seemed to run its course in three or four weeks. These attacks occurred regularly every year, until the fall of 1871, by which time we had ascertained their true character. In July, 1871, I visited Idaho Territory, and took my son with me. That year for the first time he was wholly exempt from any symptom of the disease. Late in the fall I took him to Salt Lake City, thinking the climate there would be as favorable as in Idaho; but the following season, late in September, the old symptoms returned, and I immediately sent him back to Idaho. The result was that in two or three days after his arrival in the last-named territory he was entirely well.

"The place to which I sent him in Idaho is a point on Snake River, about 200 miles north of Salt Lake City; has an elevation of about 4500 feet above tide-water, with no vegetation except grass, which, by reason of the absence of rain through the latter part of the summer and early fall, becomes perfectly dry.

"In the fall of 1874 I returned to St. Louis, and brought my son with me, thinking his constitution so strong that he would escape his customary attack. I left Salt Lake City on the 18th of September. On the 20th, between Cheyenne and Omaha, the old symptoms made their appearance, and by the time I reached St. Louis the disease was fully developed.

"We are still living here, and last fall, at about the usual time, the fever returned with all its old violence.

"You desire to know further whether any 'cases of the disease are found beyond the Mississippi River.' In reply I can only say that I am aware of but one case besides that of my son. These two cases show that the country referred to is not wholly exempt—but they are exceedingly rare.

Very respectfully yours, etc.,

"THOMAS P. AKERS."

J. T. Billings, Denver, Colorado; up to March, 1873, resided in Massachusetts:

"Thirty-eight years of age; single; druggist. Sanguine and lymphatic temperament. Attack comes on within twenty-four hours of August 20th. Have been a sufferer from infancy. Have asthma a week or two after the attack; cough later; fever, more by day; asthma worst at night. Dust, especially that from a field of ripened grain, excites the paroxysms. Disease disappears in November. Have attacks in a mild form in winter, occasioned by dust (especially straw-dust). White Mountains and Colorado relieve me. Partial relief by ocean voyage. No relief at sea-side unless beyond land-breezes. Had slight attacks once or twice in May or June."

The annexed letter of Mrs. Julia A. Davis is of interest, because of the fact that travel in California did not give the expected relief. The symptoms also were unusually protracted:

"EVANSTON, ILL., *December 29th, 1874.*

"DEAR SIR,—As I am a sufferer from hay-fever, I will endeavor to give you my experience. I have been afflicted eleven years, and have escaped but one year from its attacks, and that year during the summer and autumn months we spent on a spur of the Green Mountains of Vermont, at an elevation of 1400 feet above sea-level.

"The next July we returned to the same place—husband and myself. During July I gained in strength, daily walking from three to five hundred feet higher. With cane, I could outwalk my husband. We continued this exercise until, some time in the early part of August, we concluded to visit a brother who was ill, living about ten hours by cars from our mountain home. I was in good spirits, not thinking I should ever have another attack. We arrived, and were seated in a dark parlor, as it seemed to me. In about forty minutes I was attacked with asthma; immediately went into a more sunny room; grew worse and worse; in two days returned to our mountain home, hoping it would leave me; but little or no relief came. Remained until October, then returned to our Western home—I suffering most intensely with asthma. We tried all known remedies, morning baths and shower-baths and carriage-riding, suffering very much most of the time for want of breath.

"I had for many years desired to go to California. We concluded to start for that far-off land—expecting to be relieved from suffering, and experience a life free from disease. The *beautiful climate* we had read so much about, and I had dreamed of for twenty years, would most certainly bring about health and youth to my then weak condition; but, alas! no help—asthma, with great debility, continued to grow worse. Tried many remedies. We traveled 3000 miles in Central California in an easy carriage, visiting many places of note. We tried an altitude of a thousand

feet above the sea-level. The consequences were decidedly worse, producing headache and bleeding from the nose. This we tried three different times with the same results, producing what seemed to be a severe cold. We tried the coast, and traveled around the Bay, but found the coast winds and fogs so cold that my heart seemed to freeze within me. We called our home a place twenty miles from San Francisco and five miles from the Bay. On retiring I would seem a little better. We would rest a few days, then take another trip of twelve or fourteen days, and so we passed a year. I had lost flesh, and was very much worse than when we left Chicago the year before. The consequence was most severe—neuralgic pains and great prostration during the first winter at home. As the spring advanced I gradually began to gain; no asthma after the winter commenced, and by July was much improved. We remained at home the first summer, hoping our long absence from this climate would prevent the attack; but about the middle of August the sneezing began. (When I am at home, when the attack comes on it commences by sneezing, and continues for three weeks, when asthma begins.) I suffer for nearly four months—intensely—most of the time with asthma; little or no appetite until the cold weather begins, then suffering of a different form commences. Suffering in the region of the diaphragm, commencing about 11 A.M. and about 4 in the afternoon, and frequently in the night. The only remedy I could find was soda. The cause seemed wind, not acidity. At times the soda would fail me, and all other remedies were then resorted to. About a month ago my husband brought me a box of different kinds of candies—some disagreeing, especially hoarhound, causing a stricture for breath; then I tried some very nice molasses candy, and found relief at once. I have not had a return of the distress since; have used perhaps three fourths of a pound, taking a little when needed. At night I take a small piece, and on waking another, as it seems to assist me in raising, and I shall continue the candy.

“The asthma commences about three weeks after the first attack. I am worse by day, but always take some remedies at night, or I could not live. Dust, brimstone matches, and the frying of salt pork are my especial enemies.”

The above is clearly a case of the middle form protracted through the later form into winter.

The experience of Mr. L. J. Learned, of Lake Forest, Illinois, with shaving and abstaining from shaving, is of great practical suggestiveness. Further experiments in the same line will be looked for with interest. The case is also somewhat unusual in other respects, especially in indefiniteness of the time of appearance and disappearance:

"Constant sneezing, fever in the head, headache, pain in the eye-sockets, running at eyes and nose, excessive nervousness, etc., are the symptoms. Attack comes on in July, but at no particular date. Have been a sufferer ever since I can recollect any thing about it. In boyhood could not feed a horse with hay without sneezing; and pitching a single load of hay would send me to bed for the rest of the day, and would be sick for a day or two. Frequently, especially of late years, I will have no symptom of it at all, and in an hour will be suffering intensely—go to bed sick; next morning no trace of it left. The last few years this is the usual form with me. More or less cough for thirty years. The cough is increased by the attack. Always worse by day, and from three or four o'clock till bed-time. In-door dust from sweeping, or even the throwing down the clothes from the bed, the fine particles floating in the autumn atmosphere, and both fresh and old hay, excite the paroxysms. Strong ammonia, as strong as I can endure it, often relieves the fever in the head, at least temporarily. Disease disappears at no particular date. Have it more or less from July to November. The paroxysms affect my mind, making me gloomy or indifferent; don't think any particular state of mind brings on or affects the attack. Have observed an increased appetite immediately preceding an attack. Have during the winter or spring, when exposed to any of the exciting causes, as dust, etc., attacks resembling 'hay-fever' in a mild form, lasting perhaps for a few minutes or hours. The atmosphere of a close, overheated room will bring on some of the symptoms temporarily in the winter, so much so that my house is aired by opened doors and windows many times a day in the coldest weather. The memory is specially affected.

"From early childhood till I was, say forty, I had sick-headache intensely, sometimes as often as every ten days or two weeks. Since about that time both my hay-fever and sick-headache have been gradually disappearing, so that now I have few severe attacks of either, but instead have more catarrh, and more of what appears to be nervous headache, though that is growing less. As hay-fever grew less other ailments have lessened, and *vice versa*. Smoking recommended for catarrh, but I think with ill effects. Never tried the alcoholic liquors, so can not say. Early life spent by salt water, and was worse there than in the West. Spent four years in North Carolina, and was better there than at the East.

"Some ten or twelve years since commenced letting my beard grow. I had frequently noticed that shaving my upper lip every other day greatly aggravated the symptoms. From the time I stopped shaving I began to be better, and each year the attacks grew less and less severe up to the present time. This year I have not had any thing that ought to be called hay-fever. One of my clerks, George R. Lodge, now of Paris, Illinois, had the worst attacks I ever saw. I suggested my experience to him. He always went close shaven. He said, 'I will never shave again, if that will do any good.' It cured him in one year, and the cure continued three or four years, when I met him on the street one day close

shaven. He says, 'You see I have been playing the fool. I took a notion about three weeks ago to shave, and I have been nearly dead with hay-fever ever since.' I think Amos P. Bartlett, of Peoria, Illinois, can tell the same about himself."

I wrote to the gentlemen named in the above communication, and received the following replies :

"PEORIA, ILL., *May 22d*, 1876.

"DEAR SIR,—Yours of the 14th came duly to hand. I allow my beard to grow, but not because it is any benefit in regard to 'hay-fever,' except that I think a heavy mustache tends to keep the dust from entering the nose. I also during the existence of the disease wear a small sponge cut in two at the end to fit each nostril, which I find great benefit from ; the membrane, as you are aware, being very sensitive to dust, and the sponge entirely excludes it.

"With due deference, however, to each and every one who has tried the 'quinine' remedy and discarded it, I must say I have as yet tried nothing (and I have experimented a good deal) that has afforded any thing like the relief that the 'quinine' application does. I have now tried it three years, and have suffered nothing to what I have done every year for more than twenty-five years until I used the 'quinine' *thoroughly*.

"As I wrote you last year, I made use of the 'quinine' solution the next season after the remedy was announced in the 'German' paper—can now see that my applications were not thorough enough. I have also furnished the prescription in quite a number of cases where the result gave great satisfaction.

"I have never known any one that has had more severe or longer continued attacks of 'hay-fever' than I have, and until something better offers have faith in 'vibriones' and 'quinine.'

"Yours respectfully,

"A. P. BARTLETT."

"CHICAGO, *May 23d*, 1876.

"DEAR SIR,—Yours of the 15th inst. reached me *via* Paris yesterday. I take pleasure in giving you all the information I can. I think the only benefit from letting the beard grow is from the protection afforded by the mustache to the sensitive nerves of the upper lip, which are much exposed after shaving. This renders the patient a little less liable to take cold with the changes of the weather. I have suffered from the disease—'catarrh,' 'hay-fever,' 'harvest cold,' or whatever its name may be—since 1857. While in the army, living out-doors, sleeping under a tree or tent-fly, I was free from it, or at least from its effects, and I believe life in the camp would be the only remedy for my case. I have tried three or four kinds of catarrh snuff, each of which greatly aggravated the disease. I believe Dr. Seeley's course of bathings, dietings, etc., etc., recom-

mended with the use of his patent remedy, would kill me. I have found more relief from insufflations of weak brine from the palm of the hand than from any other remedy. I think my case peculiar. A dust of any kind aggravates it. The secretions, *which are copious*, are not at all discolored, nor is the breath in the least offensive; but when under the effect of a cold I sneeze constantly—sometimes 250 to 300 times a day. I should like to hear from you and learn what you know of this terrible disease, for I think the man who discovers a remedy for it will be a benefactor.

Very truly yours,

“GEORGE R. LODGE.

“P. S.—I do not exaggerate when I say that one half the people of Chicago suffer from this disease. G. R. L.”

It is hardly necessary to say that Mr. Lodge does exaggerate.

Indigenous cases of hay-fever on Cape Cod, or on the islands of Nantucket or Martha's Vineyard, are, I am inclined to believe, quite rare.

The case of Mr. Fessenden, of Sandwich, is the only one that has been brought to my notice. It is the early form of the malady:

The attack comes on about June 20th, and disappears the second or third week in July. The sneezing and asthma come on together. Hay and flowers excite the paroxysms. He is perfectly well just before the attack; but for years has been a sufferer from sick-headache, attacks coming on about twice a week. He has suffered from hay-fever twenty years; meanwhile the sick-headaches have been growing milder.

One year the symptoms kept on until October, and he went to Montreal for relief. In Quebec the disease disappeared; but Island Pond, Vermont, was of no service.

In the following case of the later form of hay-fever there was no cough or asthma:

“Wm. W. Wright, Oberlin, Ohio; aged sixty; married; horticulturist. A nephew and a niece, one on each side of the family, are similarly afflicted. Decidedly nervous temperament. The attack comes on from August 10th to 20th, according to provocative causes and earliness of season. Have been a sufferer sixteen years. Have no cough or asthma. Paroxysms are brought on by Indian corn, and especially the pollen of the Roman wormwood, or ragweed, as it is called at the West. Also often suffer much from handling the second crop of clover, and dust in general. Disease disappears always immediately after the first frost.”

The case of Rev. Edward M. Pecke shows that Richfield Springs is not always to be depended on :

"Forty-six years of age ; married twenty years ; clergyman of the Protestant Episcopal Church. Attack comes on August 19th ; I wake in the morning with it. All my life have been a sufferer. The disease increases steadily for three weeks, and then runs into the asthmatic stage. Asthma comes on after the first three weeks. Worse by night, generally. Peaches, dust, smoke, exposure to the sun, and sudden changes of temperature frequently excite the paroxysms. Disease disappears October 1st ; as nearly as can be observed at precisely the same day and hour. I think that I suffer less after frosts begin. If worried sufficiently to produce an effect upon the general health, the attacks are worse. The whole effect of the disease is to depress the spirits. I know of no indications of the approach of the attack that are observable. I am as well as ever immediately previous to the attack. In the summer of 1849 I was in mid-ocean (Atlantic), and escaped ; in 1872 I was in Cooperstown, New York, and escaped ; last year I was here, and escaped : these are all my escapes. The last two summers (in Cooperstown and Richfield Springs) my relief was entire ; now I suffer as much as ever. This place gives relief to Commodore Inman, U.S.N., and Mrs. Colonel Willoughby, of Saratoga Springs. They do not reside here, however, but come each summer. In 1872 I left this region for New Haven perfectly well ; was attacked before I reached Albany. Suffered a week in New Haven ; then returned, and was relieved entirely by the time I reached Utica. I have been in the White Mountains, but not at the time of the attack. In 1849 I sailed from New York in August, and escaped that year. I spent three months in England and Wales. As a child I was taken to Coney Island ; I do not remember that it was beneficial. I have lived most of my life in New York City. I think I suffer less when diverted by pleasurable occupation. All my early life was spent in New York City. There I suffered as much as I have ever suffered.

"Having had entire relief in this region. (Richfield Springs, Otsego County) for two summers successively, I had hoped that a residence here would secure me from the attacks. This summer, however, I suffer as much as usual in other places. So far as I know my case is one of the oldest, if not the oldest known.

"Surgeons say that they have never known so sensitive a nervous system as mine."

Case of Rev. Arthur Mitchell, 451 Michigan Avenue, Chicago :

"The attack comes on August 15th ; have no cough or asthma. Though sneezing frequently and violently and continuously several times—many times a day—never yet sneezed once in the pulpit, or in

any meeting. Have observed debility and languor before attack. During the winter and spring have the sneezing paroxysms, and inflamed eyes and throat, peculiar to fever period. At the extreme eastern end of Nantucket found no relief, or very little. At Marquette, Michigan, found my first relief, entire immunity from it, about five years ago. Going to Marquette before fever is due, I escape it entirely; after it has begun I find much relief. Carried it with me to St. Paul, Minn., this fall, and suffered badly there; went to Lake Superior and found relief. After six weeks' immunity return to Chicago, and have it badly in twenty-four hours or less. In 1855 was in Switzerland; do not remember having it. Have made two ocean voyages in life, but can not now remember my condition; remember, however, a sore throat troubling me on one of them. Residence by the sea-side has no material effect. Have suffered from it in Southern Virginia, but while traveling and preaching incessantly. Had it fearfully in New York.

"Almost always worse in the early morning and before breakfast. Must be very careful to wash my face gently.

"Much troubled by dryness of nostrils at night, so as to find relief by penciling with sweet oil."

Case of the Rev. Dr. Gordon Hall, of Northampton, Mass. :

His temperament is bilious. The attack comes on from August 20th to 25th, and disappears about the last of September, varying in severity different years. The cough sometimes hangs on in the fall. During the winter is liable to attacks resembling hay-fever in a mild form when exposed to dust. He has had no nervous symptoms. He is better in the city than in the country; finds relief at Fire Island, White Mountains, and British Provinces; was in Belgium and Germany in hay-fever time, and had nothing of it.

Hay-fever is remarkably infrequent among farmers. The following case is an exception :

"D. Parkhill Howard, N. Y. About the 1st of June of each year catarrhal symptoms commence—irritation of the throat; suffusion of the eyes; difficult respiration; sneezing; more or less cephalalgia; dryness of throat and air-passages. The attack comes on usually when grass is in blossom. Have asthma (slight) at first of attack. In-door dust, fresh hay, gases, pollen of corn, sudden chills, night air, are among the most prolific causes. The disease disappears when frost occurs." (This person has attacks in the winter and spring when exposed to dust, and also in a close and heated room.)

The following is from a literary lady in Connecticut. It is noticeable that one year the early form took the place of.

the later form, and that the paroxysms were excited by the vicinity of fresh-water lakes and rivers :

"Thirty-five years of age. My great-grandfather, otherwise a perfectly healthy man, had this disease. My father and grandfather have both suffered from catarrh, but neither from asthma or hay-fever. Nervous-sanguine temperament. First, symptoms of violent cold in the head, sometimes sneezing seventy times in rapid succession. These paroxysms, followed by great exhaustion, occur principally between 5 A.M. and 6 to 9 P.M. Retire early to get what sleep may be possible between 'sneezing-time' and 'asthma-time,' the latter varying between 12 to 4 and 2 to 6 A.M.; the severest suffering being the second and third hours—that is, if the attack begins at 12, its height will be at 1 and 2, when it will begin to subside. If left to itself the attack is never less than four hours long. If aggravated it will last for six hours. A second but milder attack will frequently take place in the daytime, varying from 12 o'clock to 4, seldom lasting more than two hours. If not relieved, one week of such attacks will confine me to the bed, in which at the same time I am unable to lie down. The suffering from the sense of suffocation is terrible. After an attack the muscles of arms, shoulders, chest, and back are as tired and sore as if I had been for the same number of hours employed in lifting weights far beyond my strength.

"By allowing these attacks to go on for a week or two, I have several times been so far reduced in strength as to be unable to be carried to the sea-side. Once, after a four weeks' illness, was carried with great difficulty to Bridgeport. After reaching that air, could proceed on my way without any other impediment than the weakness produced by previous suffering. .

"The attack comes on usually during the second week in August. It once came on the 28th of June, and has several times delayed till the fourth week of August. Ever since I can remember I have suffered.

"In-door dust excites the paroxysms. No flowers, unless their fragrance is directly inhaled; of these, roses, lilacs, syringas, and locust blossoms. It will be observed that the last three bloom before the regular hay-fever period. Other producing or aggravating causes are old hay, smoke, coal gas, foul air, ether, 'furze' from peaches, dampness, sudden chills, night air, over-exertion, rapid motion, indigestion, fogs, north-west winds. None of these produce more than a very slight annoyance, if any, within the influence of sea-air, unless I take a very severe cold, which seldom happens near the sea. The disease disappears anywhere from the last of September to the first of November; the date of its disappearance varies as much as that of its appearance. The disease begins to subside in violence about October 1st. Slight frosts have little or no effect; but I think actual freezing of the ground does have a curative effect. I don't know whether pleasurable emotions really relieve the attacks, or whether they only enable me to bear the suffering better; at

least I am not as conscious of the agony if I divert my attention by reading some pleasantly absorbing book. I think, too, that this prevents the attacks from reaching their maximum of distress. Violent emotion of any sort aggravates the malady. Have had attacks in a very mild form in winter and spring when exposed to dust. The atmosphere of a close, overheated room brings on some of the symptoms slightly. Leaving a non-catarrhal region before the disease has disappeared, it returns in full force. Once when spending the summer in Brooklyn, N. Y., where I was free from the attacks, I wished to go to Boston *via* Hartford by steamboat. Retired early, feeling perfectly well. Woke up about 11 P.M. with an awful attack; found we had entered the Connecticut River. Suffered dreadfully all night. Had to wait in Hartford till noon the next day for train. Had expected to spend the morning with a friend in Hartford, but was utterly unable to leave the depot. Suffering continued till we neared Boston. In fifteen minutes after reaching there was perfectly well again. The vicinity of fresh water always produces highly aggravated symptoms.

"I can never visit in the vicinity of a fresh-water lake or river, except in very cold weather, without suffering; nor can I remain in a chills-and-fever region for even one night, unless the ground is frozen hard, without violent paroxysms of asthma."

Case of S. Edward Paschall, West Chester, Pa. :

"Twenty-one years of age; single. Practical printer for three years. Family more or less subject to phthisis. Two first-cousins are affected with autumnal catarrh. Attack comes on 15th of August in the morning; this year it appeared on the 14th. Slight asthma; nervous or itching cough. Sneezing only during day; asthma at night. All dust, draughts, sometimes light, sudden change of temperature, frequently excite the paroxysms. On the arrival of heavy frosts the disease disappears. Was not attacked in Boston, although I remained there during part of the catarrhal season. Never farther north than Boston. Returning to Bucks County, Pa., about September 1st, had a violent attack. Found relief at sea-side as long as sea-breeze blows; sneezing seems to return with land-breeze."

Mr. Paschall was relieved completely and radically by the use of the atomizer.

The following case was communicated by Dr. W. C. Wey :

"H. E.—, Elmira, N. Y.; female; eighteen years of age; single; school-girl. Paternal grandmother suffered in this way. Nervous temperament. Attack comes on about the 1st of August. Attacks much the same each year. Has a slight cough. Worse during the evening and morning. Exposure to damp and chilly atmosphere, also to dust,

excites the paroxysms. Attack lasts six weeks. Occasional palpitation of heart has diminished since hay-fever appeared. Quinine has given relief. Has slight attacks early in summer."

The above case is of interest as showing that those who have the later form may also have during the summer season the early form.

Case of P. B. Greene, Brown University, Providence, R. I. :

"Male; twenty years of age. Student. Nervous temperament. About August 13th I begin to have weak eyes; they rapidly become more and more painful. Sneezing commences. This part of the disease is at its height from August 25th to September 5th. Then comes a dreadful cold on my lungs, so severe that I can hardly speak. When I have the asthma I am worse at night. Before that my most trying times are early in the morning and evening. Dust and sunlight make my eyes ache; the slightest chill will excite a paroxysm of sneezing. In the asthmatic stage of the disease pears or melons will irritate my throat, so that I am almost deprived of the power of speech. I have not noticed any change which should be attributed to mental influences. I frequently feel a sort of lassitude during July and August, which gets me pretty well reduced by the time the attack comes on; I have always attributed it to the heat of the summer. For three years I have had a slight attack in June. I have twice suffered from nervous attacks of low spirits, which have lasted several months, and have unfitted me for all work. Diet makes no difference. I have found ale and port wine very serviceable as a tonic previous to the attack. The greater the breeze the more I sneeze. Quinine has helped somewhat as a tonic previous to the attack. I had my cold once in New London, N. H., a town forty miles north of Concord, though I did not stay there later than August 22d."

The following case of R. Bosworth, agent C. and P. R. R., Hudson, Ohio, is remarkable for the continuance of some of the symptoms until January :

"Attack comes on in July. Have been a sufferer three years; less severe last summer. Better immediately after storms. Attended with much coughing at nights. Asthma commences at first attack. By night am worse. The disease disappears about January. Soon as frost comes there is partial relief; especially the difficulty of breathing through the nose ceases. Active labor produces relief. Sleep not disturbed, except by coughing and spitting as soon as I retire. Do not entirely recover from the disease in the fall. The difficulty of breathing through the nose ceases as soon as frost comes, but sneezing and a discharge of starchy mucus continues on rising in the morning, and is worse every change of weather. There is no suppuration of the glands, nor any sourness, or

any discharge of foetid matter. I feel very irritable on account of the constant care that the nose requires. From the age of eight years until eighteen I was almost constantly afflicted with headache, and from sixteen to eighteen had sick-headache. Never troubled with sleeplessness. Nervous symptoms had all left me years before, and my general health was good when this troublesome disease appeared. For five years previous I labored very hard physically and mentally. Have never noticed that my diet affected the disease, as I am very regular and temperate in my habits of living in all ways. Have tried a great variety of remedies, but none produced much beneficial effect."

In the case of Levi Coon, Quincy, Illinois, the early form passed into the later :

"Forty-six years of age ; married ; fire-insurance agent. Nervous bilious temperament. Attack comes on between August 20th and 25th, and leaves at no particular time. Have never had any other disease since I have been a sufferer from 'hay-fever.' Have smoked tobacco merely to nauseate—to relieve asthma—but have discontinued it as worse than useless ; liquors I have never tried. Had rose cold (early form) before I ever had 'hay-fever,' but not since to any extent.

"In my case the most inveterate torpor of liver and bowels accompanies the attack, unless avoided by the daily use of remedies in that direction. If neglected a few days, the worst possible aggravation of the disease follows. During my last two attacks I have avoided paroxysms of asthma almost entirely by forced activity of the liver and bowels."

Such decided disturbance of the liver during the attack is quite unusual.

Case of Mrs. C. S. C——, Catskill, New York :

"Forty years of age. Housewife. A sister's son is a sufferer. Nervous temperament. Comes on from the middle to the last of August. More than twenty years a sufferer. There are intermissions of the symptoms. Have a cough toward the end of the attack. Generally worse early in the morning, although a sensation of chilliness will produce the paroxysm at any hour. Have sometimes had rose cold in June. Have all my life suffered from attacks of sick-headache, and have been slightly dyspeptic for a few years, but am free from all the other troubles mentioned. The most severe attack I ever had was during pregnancy. Suffer less from stuffing of the head and breathe better in damp weather.

"I could not answer the question as to how long I have suffered with hay-asthma. I remember as a child having distressing summer colds, but it was not until I was twenty years old that my brother, who is a physician, pronounced my malady hay-asthma, and since then I have never, but once, escaped the yearly attack."

Case of Mrs. Helen M. P—— :

"Thirty years of age. An uncle had the same disease. Consumption on mother's side. Nervous temperament. Violent sneezing; watering of the eyes; violent pressure in the head; nervousness; violent coughing, especially at night; and asthma more or less, also at night. Very little appetite. Attack comes on about August 17. Varies from 17th to 20th. Have been a sufferer four years. Disease disappears about October 1. During the winter or spring, when exposed to any of the exciting causes, as dust, etc., I have attacks resembling hay-fever in a mild form, lasting perhaps for a few minutes or hours. The atmosphere of a close, overheated room will bring on some of the symptoms temporarily in the winter. Have sometimes slight attacks of neuralgia. Fruit of all kinds would produce a paroxysm. Have never visited any place to escape hay-fever. Happened to be in Paris last year (1873); attack was very slight indeed."

That it is possible to have even slight attacks in Europe is evidence—if more evidence were needed—that Roman wormwood is not, as some have supposed, the sole exciting cause of autumnal catarrh, for this plant does not grow in England, France, or Germany.

Case of John Erskine, Boston, Mass. :

"Merchant. My father had hay-fever. My sister has the rose cold. My father was lymphatic. My mother was nervous. My sister is lymphatic. I am very nervous. Attack comes on August 15th to 20th. Every year at about the same date; can not tell about the hour. Over twenty years have been a victim. I am better at night than in the daytime. No intermission unless the weather is cool and damp. Perfumes, dust, draught, riding in the cars worst of all excitants. Disease disappears with first heavy frost, about October 1. No headache. Had dyspepsia, but am better. Sleeplessness for years. Am rather inclined to be despondent. Better on cool, wet days. Am free at Martha's Vineyard. Find the quickest and surest relief at Bethlehem, New Hampshire. No good effect at sea-side. Am much better in the city (Boston)."

In the following case Nantasket Beach gave relief for four weeks, but not beyond that period :

"Male. Forty years of age. Married. Manufacturer. The leading symptoms are itching of the eyes and scalp; an almost continual discharge from the nose of a thin watery fluid, which leaves no stain upon the handkerchief; spells of sneezing during both day and night; cold night-sweats; a gradual shortness of respiration when making any extra

effort, either mental or physical ; then follows a dry, hard, hacking cough ; asthma ; the discharge from the nose thickens, mixed with blood ; no appetite for any kind of food more than once a day ; weak, with no desire to do any thing either mentally or physically. The attack comes on usually from the 10th to 15th of August. The past year had decided symptoms the last part of July. Have been a sufferer since 1868. Last year it was very light. This year have had at least a double portion. Occasionally during the day there will be an hour or two when I seem completely relieved, but any exertion will at once bring on the enemy again. Have cough and asthma. Asthma comes on about the third week. Am better in the morning than afternoon. Dust of any kind, old hay, gases, especially that from burning coal, bright sunlight, will bring on sneezing particularly ; also night air, and the perfume from either fruit or flowers. Ether I have inhaled several times, and it has relieved me for a few minutes ; like the many other remedies I have tried, it fails to relieve for more than two or three trials. Disease disappears the last of October, from the 25th, to the 1st of November. Frost gives immediate partial relief. Writing a business letter of any importance during third or fourth week of the disease will have the same effect as going up a flight of stairs. It brings forward all the various *peculiar peculiarities* of the disease. I observe signs of nervous depression or exhaustion—as bad dreams, sleeplessness, poor appetite, indigestion, or debility—a few days or weeks immediately preceding an attack ; just enough to realize the enemy is coming, ‘slow but sure.’ Have noticed that gas from burning coal, and being in a room where a feather-bed was being ‘shook up,’ will bring a touch of asthma and sneezing ; am more sensitive to this trouble in summer than in winter. Was subject to bilious colic and sick-headache previous to 1868. Have had neither since 1868. I was placed in a position requiring double the labor, both mental and physical, than usual. Can not drink coffee, and care for nothing but ‘plain’ food. My experience is, the less I eat and drink the better. Whisky, I think, is about the *only medicine* that gives any decided relief, and this is not always sure. It helps to pass away the time, and deadens the acuteness of the attack. Can not chew tobacco during a week or two in the second stage of the disease ; before and after that, find it a great comfort both day and night. Smoking ‘stuffs me up.’ Am better in the country. For three or four weeks I find immediate relief at Nantasket Beach ; after that time the Beach seems to be of no benefit.

“The past season I left the Beach September 10 for the northwestern part of Maine, Somerset County, remaining there till the 1st of October, almost entirely free from the disease. In fact, so long as I kept quiet I felt none of it after being there two days. Any running or unusual exertion would make me puff, but no wheezing. Was able September 28 to go hunting, and tramp with the best of them.”

Case of T. A. Ashburner, West Philadelphia :

"About forty-eight years of age. Married. Dry-Goods Commission. Have a sister who can not smell roses in June without sneezing. Nervous temperament. Attack comes on August 18 to 24. I have suffered as long as I can recollect. I have cough and asthma about the third and fourth week. Paroxysms excited by being overheated and sitting in draughts. Disease disappears at the first frost. Have headaches from disordered stomach, dyspepsia, backache (which I inherit from my mother), palpitations of the heart going up stairs. Find the quickest and surest relief lying on the back in bed. I think it is better in the city than in the country.

"It came on much later this time than I ever recollect before, and, with the exception of the first week, it is milder than ever before. The last four days it has been raining hard, and at times I felt almost well. It is always better on days when there is a cold, damp, drizzly rain, and worse on days that are bright, clear, and warm."

The following is one of the many cases communicated by Dr. W. C. Wey, of Elmira, a supposed exempt region :

"Jemima Smith. Nervous temperament. Attack comes on from middle of August to 1st of September. Time of attack not the same every year. Eight years has been afflicted. Worse every year. Has both cough and asthma. Worse lying down. Draughts of air most frequently excite the paroxysms. The disease lasts eight weeks. Frost removes the disease. Mental emotions for the time cause the disappearance of the disease. Suffers from sick-headache, dyspepsia, backache, sleeplessness, palpitation of heart, melancholy, salt-rheum. Feels better on warm, sultry days. On one occasion a very severe attack was produced in August while staying at the sea-side, and it lasted eight weeks."

Case of Vincent L. Bradford, LL.D., of Germantown, city of Philadelphia :

"I reply to your request for a report of my case, under your inquiries respecting hay-fever or autumnal catarrh, by giving you a statement of my symptoms and a history of my case, in lieu of distinct replies to the interrogatories of your circular, as follows, viz. :

"I have been a married man for nearly forty-five years. I am now in my sixty-eighth year, a native of this city, a lawyer by profession, and of a nervous-bilious temperament. I have retired from all active occupation since 1871. From 1858 to 1872 I was President of the Philadelphia and Trenton Railroad Company. In that service I strained my nervous and intellectual organization, and to avert paralysis, under medical direction, in the fall of 1871 went to Europe, and spent nine months there, in London, Paris, and other places. I have never since recovered from the de-

pression and debility of my nervous system on account of which I visited Europe, and still require prolonged rest and repose. Paternally I am of English extract, maternally of Dutch. From my maternal ancestry I obtain my nervous temperament, and from my paternal my bilious in a very marked manner. My near maternal kindred, the descendants of General Leuckermans, who was highly distinguished in the early annals of New Amsterdam (New York), have for several generations, in various branches of the family, exhibited a constitutional predisposition to debility or atony of the mucous membranes, and to consequent morbid affections of the respiratory and digestive organs. In early life I suffered frequently and greatly from croup and enlargement of the tonsils. About the age of twenty, Dr. Philip Sing Physick, of this city, removed by a surgical operation my left tonsil. The other, about the same time, was reduced by the application of caustic, under the direction of the late William Danack, M.D., of this city. I have suffered from chronic tonsillitis, laryngitis, bronchitis, and general atony of the lining mucous membrane of the throat, respiratory organs, stomach, and bowels. Some rheumatic gout complicates my morbid condition.

“My stature is five feet nine inches, and I now weigh one hundred and seventy-one pounds. I suffer no acute pains, but am much troubled with difficulty of breathing bordering on asthma. My appetite is moderate, but fair. My mode of living is systematic and careful, and therefore I am able, by strengthening my digestive organs, to suffer comparatively little from dyspepsia or diarrhoea. I use pepsin as a digestive power, in aid of the gastric juice, at dinner and supper. I take a pint of milk per diem, viz., at breakfast and supper each half a pint. I put in each half-pint three or four teaspoonfuls of the best rye whisky with sugar. By medical direction, to still my bronchial and asthmatic cough, which is daily, at periods, very distressing, I use per diem about two thirds of half a pint of the oldest and best rye whisky that I can procure, and derive benefit from it as an antispasmodic and anti-irritant remedy. Although conscious of impaired muscularity, I can take moderate exercise, and walk a mile or two a day in fine weather. In the year 1861 I first became cognizant of the fact that I was constitutionally a victim of autumnal catarrh, commonly called hay-fever. When thus informed by an intelligent physician, I remembered that for twenty-five years before that period I had been annually more or less laid up during part of August and the month of September, and part of October, with very severe and distressing *colds*, as I then termed them, for whose periodicity and abnormal phenomena I could not account. Since my recognition of hay-fever, as before stated, I have studied it in the light afforded by personal experience and scientific reading and inquiry. The morbid affection runs its course of about eight weeks, or until several hard frosts have altered the catarrhal condition of the atmosphere. I am now speaking mainly of my own case. I am almost invariably attacked on August 20th, annually. The primary symptoms are violent and continuous sneezing, accompanied

with excessive secretions and congestions of the nose, eyes, throat, and bronchial tubes in rapid succession. Beginning with the frontal sinuses and Schneiderian membrane, the sub-acute inflammation engendered by atmospheric causes rapidly affects the eyes and the hearing, and travels down the whole surface of the lining mucous membrane, until it finally seizes the bowels. Its concomitants are most distressing asthma, with a partial disability of the power of raising my chest, which is large and broad, in the act of breathing. To encounter it now, at my advanced age, in a catarrhal atmosphere, is to suffer the agony of daily dissolution almost, I suppose. I therefore flee from its approach, about the 12th of August annually, to either Canada (Quebec) or the highest points of the White Mountains which are well drained and remote from watercourses. I escape it on the Atlantic Ocean, and in the northern parts of Great Britain and continental Europe. It has been modified at Fire Island, New York, when a pure sea-breeze prevailed, and in a dry season at St. Paul, Minnesota. Last year, being incapacitated by a severe attack of congestion of the mucous membrane of my whole system, which occurred in July last, and nearly killed me, while tarrying for a season at Richfield Springs, Otsego County, New York, from proceeding to Quebec, which I consider my safest refuge from hay-fever, I was compelled to meet its threatened attack at the said springs. So well satisfied am I with my experience there, from August 19th to October 17th last year, that I propose to resort thither this year about August 15th, and to remain there until about October 17. I dare not venture to return to this catarrhal region (although Germantown is on high ground, well drained, and generally salubrious, and my home in Germantown is a well-ventilated, healthy, and pleasant suburban residence, as favorable to general health as I can desire) before October 21st, after the occurrence of several hard frosts. After leaving Quebec or Richfield Springs I tarry for a week on the road, in the regions north of the city of New York, until October 21st, annually. I thus escape a visitation of hay-fever. It is proper to remark that I can not say how an experiment at Richfield Springs will succeed, if the previous winter shall have been wet, mild, and open, or if the spring or summer shall be very humid. I can venture to predict that the experiment at Quebec will never fail, for the obvious reason that the winters and springs of that region are always severely cold, and its atmosphere consequently dry and free from miasmatic humidity during the autumn. Early frosts occur there also in September. The merit of Richfield Springs is that it is said to be some eighteen hundred feet above tide-water, and is situated in an undulating, mountainous region, well drained, and usually very cold and dry during the winter and spring.

"I will add one more remark—that a residence in a closely built city, where there are few trees, slight vegetation, a good drainage and sewerage, and an atmosphere dried by ten thousand fires, is more favorable to alleviation of the disease than a rural residence in a catarrhal region.

"P.S.—Among homœopathic remedies I have found cepa, gelseminum, china, and belladonna most useful in slightly and temporarily alleviating suffering during an attack of hay-fever. Agreeable mental and bodily rest and repose are favorable conditions of alleviation of hay-fever. My pulse is very slightly if at all affected during an attack of hay-fever. Its normal range is between sixty-eight and eighty beats to the minute. During an attack my throat exhibits increased congestion and relaxation of the mucous membrane, accompanied by sub-acute inflammation. My morbid affections are of a depressed nervous type, rather than of an inflammatory or vascular character. I attribute my present incurable chronic catarrh to hay-fever, neglected for twenty-five years before I recognized it, as before stated. I have tried, in 1870, without any benefit, Helmholtz's remedy of quinine. I have corresponded with Dr. Wyman on the subject. My attack of hay-fever is worse during the night, and when the wind blows from a humid or marshy quarter."

Richfield Springs, notwithstanding its elevation, is not an exempt region for all, or for the majority; another year Mr. Bradford may find no relief there.

Mrs. Susan Lovett, of Cincinnati, writes as follows:

"I think they (the attacks) are very much affected by mental influences, for a sudden mental diversion has completely arrested a violent attack. I suffer greatly from exhaustion and debility and depression, and have poor appetite, but no pain. I am always left in a poor condition, but rally in a week or so, excepting when in Cleveland, where a protracted cough remained for months. I am not subject to 'cold in the head'—perhaps something *resembling*, but nothing like it. I am in every way incapacitated for work. Have had but one of the named diseases in question 30, and that a skin disorder, named psoriasis, for a season. That left me, I suppose, in some degree. Never have had headache or troublesome nerves. I was not overworked or wearied, but took a severe cold from the wind changing east while in Boston in the summer season. It is modified by pregnancy, not in the change of life or nursing. Better on cool, dry, bracing days, when the wind comes from the sea and not over the land, for the pollen of hay and vegetation is afflictive in the extreme; therefore I have sought the most barren sea-coast. I have been wretchedly sick before a storm (northeast), and comparatively well after it. Have been as miserable in Andover, the highest point in Massachusetts, as in Boston. I think I might find relief in the upper part of Michigan. Once had quick relief in Alpena, Mich., and intend next year to test it more thoroughly. Have generally gone to the sea-shore, but experience only partial relief. In Nantucket, also at the sea-shore, other persons were relieved and I was not. Andover Hills, in Massachusetts, and Little Mountain, in Ohio, both elevated land or regions, afforded no relief

whatever. Have not tried an ocean trip. Have been as poorly in the south of Missouri as in Massachusetts."

The following case, which is given in considerable detail, illustrates in various ways the relation of hay-fever to the nervous system :

"September 17, 1874.

"My father suffered much from nervous sensitiveness. He injured his digestive system in early youth by over-study and insufficient exercise, and suffered throughout his life from dyspepsia and weakness of the stomach. Early religious influences, and other strong emotional experiences, probably aggravated nervous symptoms. He was 'made for a large man,' as he used to say, but was always slight in form. He was of a nervous temperament. His weak point, at least after his stomach, was his nerves. He was forty-nine years old at the time of my birth.

"My mother is, I should think, of a nervous temperament, naturally. Her health was injured in childhood by the use of mercury, otherwise she is remarkably healthy and active.

"I have a maternal aunt whose temperament is decidedly lymphatic, though her mental activity is very great, and rules her physical constitution.

"A combination of circumstances—a habit of study, with too little exercise, an intense intellectual application, some worry and anxieties concerning my health (now seen plainly to have been the chief cause of the apparent symptoms), and concerning the health and welfare of those in whom I was interested—had the effect of creating a nervous debility, which came to a climax about three years ago. At that time I was unable to employ my mind, consecutively, to bear any responsibility, to think of the future, or make plans of life or action, so that I became mentally debilitated.

"A sea voyage, a sojourn in the West, where an entire change in associations distracted my mind from its analysis of itself and my bodily sensations, and six months of out-door life in surveying, thoroughly restored my mental balance.

"During the last year I have been restored to my mental vigor, so that I have been able to study difficult questions of philosophy and logic with satisfaction and success, and I consider myself entirely restored to health, and, excepting a predominating weakness of nerves, absolutely well.

"The attack of hay-fever has never come on earlier, I think, than August 12, and never later (when I have been in a region favorable to it) than August 20.

"I lived in the central part of Ohio from the time I was eight years old until I was fourteen. During that time I was subject to an asthmatic cough. In the fall of 1859 I came back to Massachusetts, and (September) was so severely attacked in the cars with coughing (and I think

sneezing) that the journey was interrupted. Immediately upon arriving in Massachusetts the cough left me, and I have never had any cough to speak of since. This is the first certain record of my cold that I can give; but I had always been subject to colds, usually influenzas, ending perhaps with a cough. I do not think I ever had the asthma in Massachusetts.

"My nerves never troubled me until within the last six years. In 1871 (the last year in which I had been in a hay-fever region until the present) my cold was bad—perhaps not worse than usual. That was at the time of my greatest nervous debility. This year (1874) I stayed at home, and for a while was congratulating myself that my superior nervous vigor had made the attack less severe. I have learned, however, that others have experienced similar relief—including Dr. Morrell Wyman—so that I can not think my better condition of nerves has had the favorable effect I at first supposed.

"I should add that August of the present year has been perhaps the coolest August ever known in New England. After the 15th of the month the thermometer rose above 80° but once (the 18th), and on that day I have it recorded in my diary, 'My cold takes possession'—it being a date several days later than I ever before remember. Of these sixteen August days the wind was easterly on nine days. Cool weather and east wind always decrease the severity of the cold.

"I have cough at night, but not severe, and a slight touch of asthma. Neither the cough nor the asthma appears until perhaps the first week in September, and they are not at all severe.

"I am worse perhaps during the forenoon, especially if I go out into the bright sunshine—say from 9 to 11 A. M.

"So far as I can see, the usual paroxysms are not caused by any external irritation, but sometimes dust, a breeze, or smoke brings off a fit of sneezing. Riding in the steam-cars is absolutely prohibited. Nothing can be worse than the continual discharge from the nose, and the sneezing caused by the dust and smoke and draughts of air.

"The disease begins to grow less severe from about the first week in September, at the same time that the slight cough begins. When I succeed in avoiding fresh accessions to the influenza, it grows gradually better—as I express it, from a six- or eight- or ten-handkerchief activity, to a two- or three-handkerchief degree—by the fifteenth or twentieth of the month, and it is all gone before the first of October. This in the climate of Massachusetts. Inflammation of the eyes, with violent itching, often accompanies the decrease of the influenza.

"I am more susceptible to cold after the hay-fever than at other times, and have had the influenza (and other symptoms) severely in the last half of September, when I have been in a region to keep the cold off, up to the middle of the month. I have had colds in October and November which have seemed like continuations of the same disease.

"Cool weather always has a good effect; whether actual frost has any

effect I can not say positively ; but I am of the impression that I have heretofore thought it did.

"I have never observed any connection between my catarrhal symptoms and the state of my mind. As I have realized the most important relations between my state of mind and many other symptoms (now believed to have been, many of them, imaginary)—such as pain in the chest, palpitation of the heart, threatenings of paralysis, lethargy, coldness of feet, etc.—I incline to the opinion that mental causes have not had any effect on the cold.

"I have usually chosen the period of my cold for my vacation, and I should say that it was precisely the period when I have enjoyed myself the most, and when my mind has been the most at rest. I have undoubtedly aggravated the symptoms by imprudent exposure at night at places of summer resort (especially Mt. Desert) ; but I should say that the cold was the one malady (real or imaginary) which has not affected my imagination and my spirits. Indeed, I remember saying to myself, when most 'blue,' that the cold never troubled me, for I knew it was not serious.

"As I have before said, I seem to be more subject to catarrh during October and November ; but it is to be remembered that these are the months when fires are too hot and the natural temperature too cool, so that one is especially subject to influenza. I do not know that I am more susceptible to colds then than in April and May. Other than this, my health is perfectly good after hay-fever.

"I have had a chronic catarrh for a great many years. Formerly I used to cough ; once, I imagine, I coughed up a little blood ; from colds on my lungs I gradually came to colds in my throat, then to catarrhs, and now I am scarcely ever troubled with them—though the chronic catarrh still remains in a slight degree. Perhaps the catarrh is a step in the process of throwing off all disease of this nature. I certainly have much less (in general) than at one time.

"I never had more than two or three sick-headaches in my life ; nor am I subject to headaches (except bilious headaches once in a great while). For two or three years I did suffer a good deal from dyspepsia, and from backache in the lower part of my back (which I laid to the charge of my dyspepsia, and of my nervous debility accompanied by worry). I did at the time I speak of suffer somewhat from sleeplessness. One year I had an attack of dysentery, which confined me to bed for two or three weeks. My cold disappeared entirely, and upon my recovery reappeared as before.

"I never have noticed any effect from a change of diet. Am much better on cool, dry, bracing days. I have noticed no effect from thunderstorms. Northeast storms are always favorable, at least for a time. Dull, moist weather is more favorable than hot, dusty weather ; but is not so favorable as cool and bracing weather. Temporary benefit has been given by 'douché.'

"I think I was benefited once by a visit to North Conway (White

Mountains). I have had the symptoms favorably influenced by mere change of air. I have had less severe attacks at Mt. Desert (coast of Maine); I have suffered more (though, perhaps, by reason of railroad traveling) in Illinois. I spent two seasons and a part of a third at St. Paul, Minnesota. Two years ago I left Boston about the 14th of August, and was quite severely attacked on that day. Taking a boat at Buffalo, I went to Lake Superior, and by the time I arrived at St. Paul the cold had dwindled to very small proportions. It left me entirely about the 5th of September. Last year, in St. Paul, my cold was not deemed worthy of notice in my diary more than four or five times. I remember that it was really severe only on one day (September 2d), when the wind was south, and very dry and hot. It did not last, even slightly, for more than three weeks (say August 16th to September 7th). The other season was 1866. I was attacked with it in Chicago. Leaving there about August 25th, I was immediately relieved. I think that the next day, when I arrived in St. Paul, I was entirely without the cold. Leaving there September 2d, I was severely attacked in Illinois, and, if I remember correctly, suffered unusually throughout a trip to Burlington, Iowa, Chicago, Canada (the Grand Trunk Railway line), and Vermont.

"The sea-side benefits, at least temporarily, but does not cure. I think it makes a difference whether the wind is on or off shore. A sea-breeze is favorable.

"I live in the neighborhood of Boston; but have never noticed any consequence of being in or out of the city."

The case of F. French, a dentist of Rochester, N. Y., is remarkable for the happy effects of hypodermic injection of morphine:

"The attack comes on the 17th of August; it has always come on the same day, with one exception, then it was on the 24th. Asthma worse at night, also obstruction of nostrils—other symptoms worse by day. Dust, smoke and cinders of cars, exposure to hot sun, heating the body by severe exercise, excite the paroxysms. No fixed date of disappearance. This year I took my vacation several weeks before it came on, and never felt better in my life than the day it came on, viz., August 17th. Violent exercise, so that the body becomes heated, and exposure to dust while in that condition, brings on an attack at any time of year; lasts two or three hours. The night of the 16th of August I rode all night in the cars, sat up, very hot, very dry, and very dusty; early next morning, August 17th, hay-fever made its first appearance. A generous diet seems to give more strength to resist the disease. Can drink strong coffee both at morning and night at this time and feel benefited; at other times can not drink it without injury. Have found that smoking a cigar relieved the itching in roof of mouth, cough, and asthma sometimes; at other times no perceptible effect. Never tried liquors. Have tried the solution of quinine, and would rather have

hay-fever, as it aggravated the disease very much. Have also tried electricity—galvanic and electric currents, both primary and secondary, but with no effect. Have tried the sea-side during critical period—aggravated it.

“In answering ‘Yes’ to question 37, I wish to state that I never found entire relief from any treatment until this year. It came on at the usual time, and I suffered very much with it, more so than for several previous years until the 14th of September. On the morning of that day I was suffering greatly from a combined attack of sneezing, asthma, and coughing, when a friend, a physician, who was spending several days at my house, insisted upon my trying a hypodermic injection of morphine. I consented, and it was put in the left arm near the shoulder, nearly one-quarter grain. In less than thirty minutes every symptom of hay-fever had disappeared. I ate my breakfast in comfort, was out in the sun, dust, and smoke nearly all the forenoon, and worked in my office in the afternoon with perfect comfort. Next day I felt the symptoms returning, and repeated the injection with the same pleasant effect. Repeated it next day on a reappearance of symptoms, and also the next day, and have had no trouble with hay-fever from that time to this. I injected morphine four times.”

In looking over the cases as thus far detailed, it will be observed that the majority of the cases of the early and middle forms are females, while the majority of the cases of the later form are males. We have seen (p. 43) that hay-fever, as a whole, is more common among males than among females. It is possible that women are, on the average, more susceptible to flowers and the grasses and the early fruits than men; but on this point more evidence is needed.

The following case of the early form of the disease reaches me while this chapter is going through the press.

The feature in the case most worthy of note is that the paroxysms are excited by scratching the left eyebrow, or by irritating the head with a fine comb. This phenomenon can only be explained by reflex action; the irritation is conveyed to the nerve centres, and thence is transmitted to the nasal passages. The history of nervous diseases abounds with instances more or less analogous.

Dr. Carstens, of Detroit, relates a case where the symptoms of locomotor-ataxia were caused by the irritation of a scar on

the ball of the large toe. Thomas Smith, of London, reported a case of extreme nervousness in a baby sixteen months old. The nervous symptoms could be at once relieved by scratching the head or the palms of the hands or the soles of the feet; the child would remain quiet for hours under this treatment. The relief of nervous symptoms that follows electrical treatment is largely of a reflex character.

The relation of the disease to the nervous system is illustrated in this case also by early and periodical appearance of sick-headache, and by the relief of that symptom when hay-fever appeared.

The case is remarkable also in that the symptoms are relieved by severe manual labor.

Electricity, it should be remarked, is a remedy that works very differently with different organizations. Some are almost always benefited by it, whatever may be the disease from which they suffer; but occasionally we find temperaments with which it does not agree even when given in moderate doses.

“June 10, 1876.

“Malcom Graham, Momence, Ill.; thirty-seven years of age; married; physician. No relatives with hay-fever. Nervo-bilious. Father has asthma; mother's family consumption. Bilious temperament. The attack comes on about middle of May. I have suffered eight or nine years. No distinct intermissions. No cough or asthma. Am worse during day—7 to 10 A.M., 3 to 6 P.M. Roses and flowers, dampness, chill, brimstone matches, *ippecac powdered*, scratching *left eyebrow*, also head with fine comb—all are exciting causes of the paroxysms. Mental labor or worry in business makes me decidedly worse. No premonitory symptoms. No attacks during winter. From infancy to twenty-five a *weekly* sufferer with sick-headache. Had some dyspepsia at nineteen. Eczema of scalp from infancy to fourteen. Prurigo of scalp from twenty-seven to present time. Have had very little sick-headache since hay-fever commenced. When first attacked was greatly worried in business affairs. Diet makes no difference. *Opium stops it*; haven't tried stimulants. Better in bracing, cool weather, otherwise no difference. Nasal douche no relief; manual labor (continued) brings complete relief; getting away from business also relieves. Have not tried quinine, but shall do so. Am trying galvanism—12 cells (Bunsen's) centrally applied; also

to top of head and bridge of nose ; have used it only one week every second night. Think I am somewhat better, but not much. Opium gives me almost complete relief if I take it just after breakfast every morning ; am afraid of becoming addicted to it. General health excellent. Can stand any amount of riding, but it don't seem to be exercise enough for me. Height, 5 ft. 8½ in. ; weight, 135 lbs.—weight ought to be 145 to 150.

"Any suggestions from you will be faithfully followed. By going to work on a farm could be free from the disease, but don't want to leave my practice."

Dr. Hutchinson's success in treating a case of hay-fever by central galvanization has already been referred to (p. 162). In reply to my further inquiry he sent me the following note :

"PROVIDENCE, May 26, 1876.

"In answer to your inquiry concerning the case of hay-fever treated by me during the summer of 1874, by central galvanization, it gives me great pleasure to state that the beneficial effects then noted remain to a very considerable extent. The lady came to me again last September with a moderate coryza, but having none of the severe symptoms which had invariably accompanied previous attacks. She had so little trouble that I deemed further treatment unnecessary, and so informed her. Trusting that the same happy effect has been obtained by other members of your *corps d'observation*, and that we shall yet have some specific cure for so terrible an affliction, I remain,

"Very sincerely yours,

"WILLIAM F. HUTCHINSON."

Mr. J. H. G——, an editor of New York, inherits the trouble (the later form) from his father. The peculiarity of his case is that

He gets relief by riding in a strong wind, or by sitting before an open window—sitting where, at ordinary times, the draught would be sure to give him cold. Usually he takes cold easily in a draught. When the hay-fever is upon him, a draught of air is the best relief.

Case of John B. Cousins, of Detroit :

"The lakes, for eight or ten days, also the mountains of the Alleghanies in Maryland, on the water around Old Mackinaw—all relieve me. While I am on the lakes, I am all right ; but no sooner do my feet touch the dock or land than sneezing and blowing of nose and running of eyes commence. My residence is here in a city, and my occupation

consists in riding all day from school to school, yet I am not benefited; have been in Chicago, and it aggravates it every season.

"I will add that every thing that is pleasant, such as flowers, fruit, etc., whenever brought into my room, brings on a paroxysm of asthma and cough; also the ragweed aggravates it. The sun is injurious to my eyes, and compels me to carry five or six handkerchiefs per day. My eyes are so bad that I have to sit in a room at night without light. I am afraid, as my sickness is so very severe, having not got rid of the catarrh yet (October 9th), and as this leaves generally in September, that this is to be a harder season than I have ever before experienced. My asthma lasts severely about two weeks, cough three; but it prostrates me entirely. This year I could eat nothing but oysters, and was heartily sick of the sight and smell of them—nothing but oysters would stay on my stomach. Inclination to vomit incessant."

Confirmatory facts, in addition to what was stated in regard to the transmissibility of hay-fever on p. 46, are constantly accumulating. In *ten* families of which I have histories, derived from the replies to my circular or from the literature of the subject, there were *forty-eight* cases of hay-fever in its different forms.

Mr. A. S. Harris, of Chelsea, Mass., who has the later form of hay-fever, has suffered as far back as he can remember; and he adds:

"I was born on the 15th of June, and my mother informs me that my nostrils were 'stuffed up' a few hours after birth. This would seem as though the rose cold 'put a mortgage on me' at that early age; but I never remember that roses affected me. The cold took me in the fall, as far back as I can remember."

Mr. Harris visited Martha's Vineyard and the Isle of Shoals without benefit.

The following case is interesting on account of the circumstances of the first attack and the accompanying nervous symptoms.

Case of Dr. John Wright, Clinton, Illinois:

"My first attack was in September, 1856 or 1857. I went in a hurry one night to see a child that had taken opium, forgetting to put on my necktie. When I returned I lay down, and a fit of asthma came on. I could not get my breath; this all passed off by morning. The next night the same thing took place. In a few days I was well for about two

weeks, then the same train of symptoms followed. I think I got well in November or December. There is simply a difficulty in breathing. The attack comes on in September, I think. I think it varies somewhat. It has been about eighteen years since I was attacked, and some years I almost escape, only having enough of it to remind me that I am an asthmatic. When I am about to be attacked, for weeks I generally awake at a certain hour of the night, and can not sleep until nearly morning; sometimes I do not know what is the matter until the attack comes on. Have also itching of the chin and face before and during the attack. My health would be nearly perfect if I did not have asthma. It is with me purely a nervous affection, or it is through the nervous system that the disease is brought about.

"Since filling out this blank I have visited Cincinnati, and after being there one week free from it, it suddenly came on me, and I am now having it."

Mrs. Rowe, of East Chatham, N. Y., thus describes her symptoms :

"At first I am depressed in spirits, feel weak and nervous for a few days before an attack, then, generally in the afternoon, I am taken with sneezing, my eyes run and itch, and my nostrils require a constant use of handkerchiefs (which I have to use by the quantity, a dozen in a few hours). In a few days (three or four) I feel the asthma; have to be very careful not to overdo, or it would come upon me sooner."

The following case has been under my professional observation :

"The symptoms are, first, coughing, tickling of nose, eyes feel bad; then comes asthma, then I cough. Do not sneeze. Attack comes on about middle of August. Have been a sufferer four years. The paroxysms are excited by cinders, gases, foul air, draught, sunlight, sudden chills, night air, and brimstone matches. Disease disappears about October 1. During the winter or spring, when exposed to any of the exciting causes, as dust, etc., I have attacks resembling 'hay-fever' in a mild form, lasting perhaps a few minutes or hours. General faradization gave temporary relief. An ocean voyage was tried with good effect. Spent a year in San Francisco, and did not have the disease. Had a slight cold at the usual time of the attack."

A peculiar feature in the above case was the continuance of the cough after the other symptoms of hay-fever had disappeared.

The relief at San Francisco is worthy of note. The elec-

trical treatment was not administered by myself. Instead of general faradization, I should have used central galvanization (p. 161).

The experience of J. Augustine Wade, of Cambridgeport, Mass., shows that the sea-side, and even an island in the sea, may fail to relieve :

"Never have lived by the sea-shore, but September 3d, 1873, went to the Isle of Shoals, intending to remain if beneficial, but was so badly affected that I was glad to return home.

"On the 9th inst. left for Lake Umbagog, in Maine (where I had been before), and found immediate relief—in fact a perfect cure. Have been to other places equally as good, however, viz., White Mountain region, New Hampshire ; Maguadavic Lake, New Brunswick ; Schoodic Lakes, Maine ; Moosehead Lakes, Maine, etc.

"I have no positive knowledge regarding Roman wormwood other than that contained in Dr. Wyman's work ; but have made careful search, and failed to find it in localities where I have had entire relief. It grows very plentiful in this vicinity, and I believe it is one cause of the trouble. Disease disappears last of September."

Case of Mr. J. C. Brock, of New Bedford, Mass. :

"Live near the water, and spent considerable time in August at Martha's Vineyard Camp Ground. Saw no change. I have been out of business recently, and have not been on the cars as usual. At the height of the disease I had to visit Boston (fifty-six miles), and suffered intensely all the way. Was relieved on my arrival there. On my return suffered again until half-way home. I then held my handkerchief to my nose, and after a few miles was much relieved, and continued so the rest of the journey. The latter part of the week I went again ; kept my handkerchief to my nose all the way going and coming, and had no trouble.

"When the disease came on I was on the cars ; read an article on the subject in the morning paper ; commented on it with my friends, and in a few moments told them I felt it coming on, and was not mistaken. My father had the asthma."

Mr. Luquer, of Manhasset, writes :

"Used half a wine-glass of whisky in a tumblerful of water every night before going to bed two weeks before the attack, as prescribed by Dr. Watson, of Dresden, Saxony. As I am not addicted to the use of this stimulant, found that the disease was not as severe. This treatment was continued till October 1."

The case of Mr. Joseph D. Bates, Danielsonville, Conn., would seem to suggest the query whether the cause or causes that excite chills and fever may not also excite hay-fever :

"While in business in New York, the last four years I resided in Brooklyn, about three miles east from the ferry. One afternoon late I rode through a locality where it was said fever and ague might be found if carefully looked for. The next morning I felt as if I had taken a slight cold, and I breathed hard as in asthma. This was the fore part of August. The trouble in breathing continued a few days, and violent coughing set in, which continued some weeks. I did not take any particular notice of it then, not supposing I should be troubled again in a similar way. Since then every year has brought about similar difficulties. I am not troubled much at night, except one or two paroxysms of coughing toward morning. I do not bolster up in bed, but lie with my head on a level with my shoulders.

"Three years ago I visited St. John, New Brunswick, going from Boston by steamer. A few hours after leaving Portland my coughing ceased, and did not trouble me while I stayed at St. John (ten days). Came back to Portland and started for Montreal. Was troubled while at Portland, but not after leaving there until I got back as far as Bolton, Lake George, and from that time until frost came in October I was as I usually am in the fall."

The relief of hay-fever (later form) by the coming on of other diseases is shown by the following case of Mr. Joslyn, Ferrisburgh, Vermont. In connection with this case see page 92.

"The attack commences with sneezing, with discharge from the nose and eyes, attended this year with constant stricture of the nose, so that I could only breathe with mouth open.

"September 11th I was attacked in the night with dysentery and diarrhœa, and have been entirely free from the cold since the coming on of the latter, which lasted a week or more."

James M. Allen, of Cleveland, Ohio, writes as follows :

"Three years ago went to Profile House ; found no relief. Then to Isle of Shoals, with but partial benefit ; and on touching mainland was worse than ever.

"Next year went to Halifax, *via* Boston ; between Eastport, Maine, and St. John the disease left me. On reaching Portland from Halifax on my return the fever came on bad again.

"Next year went to Murray Bay, on the St. Lawrence, below Quebec ; was well there, but overtaken again on my return at Ogdensburg.

"This year, 1874, went first to Quebec, but so many whitewashed buildings hurt my eyes. Then went to Magog—on Canada end of Lake Memphremagog—where I was all well, with no trace of disease except weakness of head. Gained five pounds, and am satisfied that Magog is the place for relief.

"Then went to Boston, and at Portland I was caught again. On my return went over Grand Trunk Railroad, and at Gorham, N. H., my head was clear again, and remained so until after leaving Sarnia and Port Huron, when I became once more a victim, and am yet. This year I first experienced slight relief on reaching Toronto, where I took boat.

"Think some of going next year at first to Lake Simcoe, Ontario; and if not successful there shall go to Magog.

"Was at Cohasset Beach, Boston Harbor, a week, two years ago, but not a particle of relief was experienced.

"West of the Mississippi would be better than going East, were it not for the railroad dust."

Rev. Jesse Young, of Maryland, writes:

"My home now is 1200 feet above the sea; a little alleviation. Have never tried an ocean voyage. Was at Lynn, Mass., in 1867. No asthma, but bad in head. In 1872 was at Ocean Grove, N. J. Experienced relief when wind was from sea. Was in great suffering during prevalence of wind from land. Was in Washington in 1864. Attack was nearly the same. Have used quinine; never kept the disease off.

"I was at Oakland, Md., 2100 feet above the sea, in 1873. About thirty persons were there. It was said to be an exceptionally unfavorable season. All but two or three suffered severely. The attack was shorter on account of the early frost. Left there too early, and was attacked again in Washington the latter part of September, and had a severe attack of pneumonia from October 1st to 15th."

I had been told that hay-fever was especially prevalent in Pittsburgh, Pa., and the theory had been advanced that the cause was to be found in the smoke and soot for which that manufacturing city is famous. I wrote to a prominent physician of that city, Dr. Thomas J. Gallaher, and received the following reply:

"PITTSBURGH, *October 24, 1874.*

"Hay-fever occasionally occurs in this locality, but not near so frequently as you seem to suppose. It is, I believe, more frequent in the rural districts of the city than in the more populous parts. We do not believe that our smoky atmosphere creates it, but on the contrary, in a measure, relieves it. Some people get relief by coming from the country and inhaling our sooty air."

On page 90 the statement is made that hay-fever is rare among negroes. The following, reported by Dr. Rodman, is evidently a genuine case of the later form :

"NEW HAVEN, *September 25, 1874.*

"I am led by a paragraph (p. 18) in this week's *Independent* to send you the following statement—not knowing whether it will be taken as a thing pertinent for me to do.

"A fortnight since I was called to visit a colored woman, poor and hard-working, who for four or five years has had, I think, unmistakable 'hay-fever.' About the middle of August she is taken with severe coryza and catarrh, with sneezing, asthma, cough, fever, and prostration. It continues several weeks, and disappears without hitherto doing much credit to the treatment, which has been very various. The remainder of the year there does not seem to be any thing peculiar in her state of health."

Mr. J. Erskine, whose case is elsewhere reported, writes from Bethlehem, N. H., under date September 20th, 1874, as follows :

"A lady, who lives in Whitefield, near here, and who never had the hay-cold, took it from Roman wormwood that was mixed in some grain sown by her husband, and which grew up. She went to Jefferson, and was cured. As I was informed, the wormwood was pulled up, and now she is not troubled."

Mr. Erskine further adds that, "as a rule, people are not as free from hay-cold here this season as usual."

The following cases of Daniel Webster and Henry Ward Beecher are taken from Dr. Wyman's book. Both cases are of interest as illustrating the fact, several times reverted to in this work, that hay-fever, in its severe forms, may occur in those who are otherwise unusually strong, and capable of great endurance. Judging from my personal observations of cases, and from the reports that have been sent me, I am quite confidently of the opinion that hay-fever goes harder with the strong than with the weak. In this respect it would seem to follow the analogy of many other diseases. Great orators are always susceptible, nervously ; without this element, indeed, success in oratory is impossible. Neither

Webster nor Beecher belongs to the class of so-called nervous people ; but they represent a type of constitution in which great strength is united with a certain nervous impressibility, which, except in times of excitement, is masked by the accompanying and antagonistic qualities.

Case of Daniel Webster :

"The private correspondence of this eminent statesman shows clearly that he was a subject of autumnal catarrh.

"September 18: 'My head and eyes are not in the best condition. Traveling against a strong wind has brought on my cold badly, and to-day I am not well. The cold, or influenza, with which I am lately visited, is likely, according to former experience, to last some weeks, and quite disables me from public speaking.' 1845, at Marshfield, the attack seems to have been earlier than usual: 'Here, August 17, I have been more or less under the influence of my incurable catarrh. Some days I have felt quite discouraged. Now it seems a little better. The paroxysms are not so frequent, though two days ago I had a very bad forenoon. It came on in a moment, and went off, when it did go, just as quick. Some days I feel quite well, and can keep out without inconvenience, if the weather be fair; on other days I can not go out at all, fair or foul. Last Thursday was fair weather. I went over to the Gurnet, and caught some fish, and felt well all day; since then my catarrh has been continually quite severe. I hope it will soon begin to taper off.'

"October 4, 1851, at Marshfield: 'The catarrh, with its sneezing, its nose-blowing, its cough, and its asthma, seems to be taking leave. My eyes are still weak, but my greatest difficulty at present is a general want of strength.'

"November 5, 1850. While Secretary of State, Mr. Webster, evidently under the influence of his depressing malady, writes to the President: 'I am quite aware how inconvenient my long absence is to you and the government; and sometimes I feel, as this disease is of annual occurrence, I ought to regard it as unfitting me for an office the duties of which require constant attention. I must now go to Marshfield for a few days. When there a fortnight ago, I was hardly able to go out of doors, and could do nothing about arranging my little affairs.'

"September 28, at Marshfield: 'Sometimes the force of the catarrh seems pretty much broken, and then it returns, attacking the head, eyes, nose, etc., with great violence. I think it is approaching its last stage, which is the asthmatic stage. Some of our friends, who are subjects of the complaint, and have short necks, dread this. I do not fear much from this, although in this stage I feel its influence more or less on the chest. In such a day as this, a northeast rain-storm pouring, I cough a little, and am as hoarse as a frog.'

"October 4: 'The recent weather, eold for the season, has been useful to me.'

"The previous year, September 27: 'My eatarrh is going off, or else is having a long intermission; and for whiehever it may be I am truly thankful.'

"September 29, 1848, at Marshfield: 'My catarrh is greatly relieved. If I get through the night without a paroxysm, I mean to set the lark an example of early rising to-morrow, and listen to the "murmurs of the Atlantic surge" before the sun fairly purples the east.'

"Some years it lasted longer. 1850, October 14: 'Tuesday, the 8th, I was to have gone into State Street to meet the people, but I did not find myself well enough. The next day, Wednesday, I came down to my house a good deal sick, and have hardly been out of doors from that day to this. My eatarrh has held on unaccountably, and for three or four days I was quite ill with it, so much so that I called a physician.'

"Mr. Webster, during the eritical period, was in suecessive years in Washington, New York, Boston, and at his sea-side residence in Marshfield, near Plymouth, Mass. In all these places he suffered nearly equally. In 1839 he was in Scotland during the month of August and the greater part of September, and was exposed to the rain at Lord Eglinton's tournament, but escaped entirely.

"In 1849, August 30, he was in Franklin, N. H., about forty miles south of the Mount Washington region: 'My eold was severe coming up in the ears, but since Monday evening I have hardly felt it. My eyes are weak, and I am obliged to avoid the sun; but so far I have suffered nothing in comparison with former years.'

"In 1851, August 6: 'To-morrow I think of going to New Hampshire, hardly so much for a ehange of air as to look after some private affairs. In general I find that those affected by my complaint avoid the interior, and come to the coast. But this is not universal.'

"Franklin, N. H., August 10: 'I came to these regions on the morning of Thursday, the 7th, thinking that the mountain air might strengthen me against the times when I expeet my enemy, the eatarrh, to attack me.'

"August 19: 'Although I date this letter from Franklin, N. H., I write it among the White Mountains. I stayed at Franklin until the railway trains, passing and repassing every few hours, began to bring me many daily visitors; and as I wished for quiet and privaey, I took my own conveyanee and came off in this direetion. I have never had eonfidence that I should be able to avért entirely the attack of eatarrh; but I believe that at least I shall gain so much in general health and strength as to enable me in some measure to resist its influence and mitigate its evils. Four days hence is the time of its eustomary approach.'

"August 25: 'As yet I do not sneeze, nor are my eyes affected. It has not stayed away so long before.'

"August 26: 'Things are in *statu quo*. There is no positive symptom or appearance of catarrh. In driving out yesterday afternoon the wind

freshened up, and I sneezed twice; but John Taylor sneezed three times.'

"Franklin, August 27: 'Thus far the catarrh holds off. It was due the 23d, but as yet does not show itself.'

"September 8: 'I have been able to keep off the catarrh so far.'"

The case of the Rev. Henry Ward Beecher is accurately as well as graphically described, and is noteworthy on account of the premonitory nervous symptoms. Since this letter was written Mr. Beecher has been completely relieved for several seasons at the Twin-Mountain House, White Mountains:

"BROOKLYN, *September 25, 1868.*

"DEAR SIR,—In reply to your request I will give you some account of the 'hay-fever' to which I am annually subject.

"Until I was about thirty-six years of age I had no symptoms of it. I was not subject to catarrh or colds. On returning from a residence of from twelve to fifteen years in Ohio and Indiana, where I was at various times subject to malarial poison, I settled in Brooklyn, N. Y. The second year of my settlement here, say 1849, while at Woodstock, Conn., I caught cold, as I then supposed, about the middle of August. The next year I noticed that I caught another cold, at just the same time. When, on the same date, the third year I caught cold, I began to inquire about it, and then learned I had hay-fever, or hay-asthma. I have, with the exception of two years, had a return of it, so punctual that I have always admired, rather than desired, this instance of the regularity of nature.

"There are four stages of the disease in my case:

"1. From the 1st of August to the 17th or 20th there is, I am persuaded, a slight febrile disturbance of the system. Ordinarily it is not troublesome, or even noticeable. But the least cold taken, or the slightest irregularity of diet, develops heat, and a kind of knitting of the sutures of the skull, as if they were slightly moving, or matching themselves over again. Sleep is also full of dreams, not celestial. But the whole passes so lightly that I did not, until within three years, make it a matter of study.

"2. On or about the 17th of August the second stage is developed. My eyes puff out, are very sensitive to light, and full of tears. My nose is exquisitely sensitive, and subject to incessant and copious defluxion. The slightest draught of air produces sneezing of the most enterprising character. To sneeze in tens and twenties, with repeats *ad libitum*, is part of my daily duty. The odor of flowers, smoke, and cinders in cars, dust, perfumes, or any thing ordinarily without disagreeable effects, now produce sneezing, and a copious secretion of thin and watery mucus. This stage lasts about a week or ten days—my eyes growing worse, and

the light more intolerable. A walk of half an hour in the full sunlight is enough at any time to bring on a paroxysm in every symptom.

"3. After about ten days the secretion becomes thicker, the nose is stuffed; the eye grows stronger, but the lids are inflamed, and itch incessantly. The *alæ* of the nostrils also are vexed with sharp and itching paroxysms. During all this time my appetite is moderate, digestion good, and sleep undisturbed. Otherwise than the difficulty of using the eyes, there is no hinderance to intellectual labors.

"4. About the fourth week the eyes are entirely well, the nose somewhat congested still; but the disease drops down upon the chest, asthma develops, a convulsive cough sets in. In the morning I raise a thick starch-like mucus, without blood or any other admixture, but like calves'-foot jelly. It has a slightly metallic taste. This stage lasts about a week or ten days, and then the disease quietly disappears; or else it breaks up with some row in the system—such as a breaking out all over the body of itching blotches; or a violent night of cough and asthma that wrenches every thing about me.

"The attack often, in the beginning, comes on so suddenly that whereas at tea perfectly well, in ten minutes after I am deluged with tears and flowings at the nose. In other seasons the inception is more gradual.

"The same feature is observed in the close. Sometimes it ends so abruptly that, after a night of suffering, I awake without a symptom felt. At other times it oozes and creeps away, like a rill gradually drying up.

"During the whole period of from five to six weeks the disease is subject to distinct remissions.

"Although I have had thirty years' experience, I am not cured of believing, every year, that it has ended its career two or three times during its progress. A day of violent perturbation is sure to be followed by a day of quiet. Two or three days of very little disturbance break out into a great uproar. I have not noticed that alternate days are, regularly, well and sick days respectively.

"My temperament is mixed, predominantly sanguine-nervous, but with a dash of bilious. As to treatment: after the disease has begun, no treatment has ever checked or cured it. But where I have taken a preparatory course I have sensibly alleviated it, and shortened its term.

"It should be added that I live during July, August, and September at Peekskill, forty miles above New York, on the Hudson River, among the Highlands, on a high, dry, and warm piece of land. I have never spent a summer in the city, and shall never, if I can help myself. I had rather have hay-fever.

"The two summers that I visited Europe I was entirely free from it. During the week that it was due (in 1863) I was in the Tyrol. On the 17th of August it came, knocked, and looked in upon me—but did not stop. There was a single hour of mild but unmistakable symptoms, and only one.

"I have abundant evidence that change, not of place but of climate,

will prevent it. The Catskill Mountain House is filled every summer with fugitives from 'hay-fever,' and they find immunity. Some of my friends escape it by going to the Adirondacks, and some by a tour through the Lake Superior region. The Fire Island Hotel is a great resort of New-Yorkers who are afflicted with ophthalmic catarrh. Fire Island is about fifty miles from New York, on the ocean coast of Long Island.

"A sister is a sufferer, and a brother's son. No others of our family have been attacked. Many gentlemen in New York arrange their business so as to make an August voyage to Europe, thus escaping the inception.

"A lady sends me word that she has cured herself permanently by using sulphur three times a day, as we used to take it when children."

The following extracts are taken from letters addressed by members of the United States Hay-Fever Association* to Frank B. Fay, Esq., secretary of that organization, by whose courtesy I have the opportunity of referring to and using them in the present treatise.

It will be observed that the portions selected relate mostly to disputed or interesting points, and to suggestive items of personal experience, especially questions of the comparative merits of exempt localities.

* "Constitution of the United States Hay-Fever Association; organized at Bethlehem, New Hampshire, September 15, 1874:

"ARTICLE I. This organization shall be called 'THE UNITED STATES HAY-FEVER ASSOCIATION.'

"ART. 2. Its object shall be mutual benefit, and the seeking for information which shall serve to relieve all sufferers with hay-fever, wherever found.

"ART. 3. Any person afflicted with hay-fever or rose cold may become a member of this association by signing the constitution.

"ART. 4. The officers of this association shall consist of a president, vice-presidents, an advisory board, a treasurer, corresponding secretary, and recording secretary.

"ART. 5. It shall be the duty of each member to report to the recording secretary the discovery of any remedy, source of relief, or exempt district which may come to his or her knowledge during their natural life, and afterward, if permitted!

"ART. 6. The secretary, on receipt of such information, shall apprise each member of the association at their last and usual place of abode.

"ART. 7. Honorary members may be elected at any meeting of the association.

Case of W. H. Y. H.—, Portsmouth, N. H. :

"June 29, 1875.

"My experience and observation do not tend to confirm Dr. Beard's theory that the disease depends upon the state of the nervous system. It appears to me that hay-fever is caused by some poisonous or irritating quality emanating from vegetable matter on actual contact with the mucous membranes of a small portion of our community, who are predisposed by their peculiar organization to be affected by such contact. It may be that the nerves have some agency in this predisposition.

"I believe that vegetable matter is the exciting cause, because,

"1. Dr. Peabody, of Harvard College, who was for more than thirty years my teacher, had precisely the same suffering that I have the last of August. I have often conversed with him upon the subject, and have no doubt that the June rose was the cause of his suffering, and that the essence of that cause of his suffering was identical with mine sixty days later, though it must be combined with other causes, for the rose gives me nothing but pleasure, and Dr. Peabody is as well in August as I am in June, or we must have different predispositions to be affected from the same causes.

"2. There is another reason why I believe that vegetation is the exciting cause, and that is, in a few hours after a rain sets in, if long continued, I am relieved ; so if the wind for several hours prevails from the

"ART. 8. The annual meeting of the association for the choice of officers and other business shall be held at Bethlehem, New Hampshire, on the last Monday in August in each year, at 4 P.M. Other meetings may be held in September, upon the call of any six members of the board of government.

"ART. 9. This constitution may be amended at any annual meeting by vote of the majority present.

"Board of Government, 1874-5 :

"*President.*—Judge C. H. Briscoe, Thompsonville, Conn.

"*Vice-Presidents.*—James M. Seamans, Brookline, Mass. ; A. J. Beers, New Haven, Conn. ; Otis Benton, Amherst College ; Chapl. G. W. Dorance, U.S.N., Brooklyn, N. Y. ; Theo. W. Ellis, Springfield, Mass. ; James M. Ormes, Washington, D. C.

"*Advisory Board.*—Mrs. Col. C. H. Hammond, Chicago, Ill. ; Mrs. G. F. Grout, New York City ; Mrs. Professor M. M. Johnson, Pittsburgh, Pa. ; Mrs. L. H. L. Traip, Burlington, Vt. ; Mrs. J. J. Henderson, North Cambridge, Mass. ; Mrs. A. J. Holman, Philadelphia ; Mrs. R. H. Burnham, Hartford, Conn.

"*Treasurer.*—J. Shepard, New Britain, Conn.

"*Corresponding Secretary.*—W. M. Davis, Syracuse, N. Y.

"*Recording Secretary.*—Frank B. Fay, Chelsea, Mass."

ocean, near which I live, I am relieved. I believe most sufferers are relieved while at sea; and I think the reason why sufferers are relieved in mountainous regions is because they are above, or out of the range of the space in which this poisonous matter moves.

"3. After watching the hay-fever through a long lifetime, I am satisfied that the vegetable matter in contact with the mucous membrane irritates, inflames, and swells the tissues, and obstructs the perspiration.

"I have this opinion from the fact that any thing that will allay inflammation will give relief; a poultice I have sometimes found relief from, a warm cup of tea or coffee, or a warm breakfast.

"My greatest suffering has been at night, when the fever has taken the form of asthma, for a long time depriving me of sleep. After many experiments, I discovered that about two tablespoonfuls of undiluted whisky would immediately produce profuse perspiration, and give immediate relief. Up to the time of making this discovery I had made next to no use of any kind of liquor. I have many, many nights lain without sleep, and breathing with difficulty all night.

"But about fifteen years ago I discovered the relief, and my rule since has been to lie in bed till midnight, and then, if there is no prospect of rest, I get up and go into my dressing-room and take about half a glass of whisky without water, and by the time I reach my bed I am in a profuse perspiration, and go to sleep immediately, and sleep as long as the perspiration continues, from four to five hours. In the spring and summer I give up coffee for tea, and use no liquor or wine, so as to increase the remedial power of the whisky at night. But as I grow older I perceive a diminution of the severity of the attacks of hay-fever, and I sometimes get a good night's rest without the use of alcohol.

"4. An additional cause of my conviction that the cause of hay-fever is vegetable is the fact that the time of my attack answers to the state of the season. If the season is what is called backward, the attack is delayed till the 25th of August; if it is early, it will come on by the 16th of August, varying about ten days according to the season.

"It is always cured by a frost, from which I infer that the poison spends its force in a short time, and requires to be renewed daily to prolong the effect."

It will be seen that in the above communication Mr. H——, after stating that he could not agree with the nerve theory of the disease, goes on to present a theory precisely similar to that given in this book. It is probable that the unpopularity of the nerve theory comes in part from the fact that wrong impressions prevail in regard to it; it is supposed that it excludes all idea of excitation of the symp-

toms through vegetable and other irritants. Those who read this book need not be told that such an impression is a most mistaken one.

The following communication is of especial interest. The transmissibility of the disease, and its increase in recent times; the relation of the early and later forms; the relief sometimes gained in large cities, are all illustrated.

Case of J. W——, M.D., Duxbury, Mass.:

"June 23, 1875.

"An elder sister of Mrs. W—— suffered from the disease for some ten years previous to her death, which took place in August, 1850. The very next season Mrs. W., who had never had even a symptom of the trouble, was attacked quite violently, and for many years suffered severely, unless she could visit Boston. One day's time would relieve all unpleasant feelings, and a visit of two or three weeks would produce such a change in the system as to enable her to return, and to remain at home with impunity until the next June. In her case Whitcomb's Remedy and the inhalation of ether proved the most effectual palliatives; and I am happy to say that for the last ten years a moderate use of these remedies has enabled her to remain at home through the season. My son and a younger daughter are tormented, the one in June and the other in September, but so far with less severity than their mother.

"When I began the practice of medicine in 1837, I think there were not more than three cases of hay-fever known here; now I have among my patients a dozen or more. One lady died here some three years since, aged eighty-two, who suffered for more than half a century; and I have now one patient, aged eighty, who has been afflicted sixty-six years, and who finds no relief except from a three weeks' residence in Boston. I think Provincetown has been an exempt region for two or three of my patients.

"Sudden changes have a very decidedly bad influence on the disease, whether from dry to wet, or *vice versa*; but I have never seen that the day or night made any difference."

Those who contemplate a western trip will be encouraged by the following.

Case of Mrs. N. H——, Iowa Falls, Iowa:

"March 14, 1875.

"My wife is a victim to that dreadful disease, and has been for eight years; being therefore anxious to obtain all the beneficial information we can, we thus address you. I will give you a little of her experience

with hay-fever. Her first symptoms commence about the middle of August, and last about ten weeks. I might say the first symptoms are itching of the eyes, sneezing, and nose running, and progresses to the lungs. We have never found any medicine that has produced any thing but partial relief.

"In the summer of 1873 we went to Colorado; stopped at Denver about three weeks, at the end of which time the symptoms of hay-fever were very prominent, so we fled to the mountains, went to an altitude of nearly 9000 feet, and had not been there twenty-four hours before all symptoms were gone. We remained there about fourteen months, until the period of 1874 was about past, as she never had it after the 1st of November. So we started for our home in Iowa, and stopped in Southwestern Kansas on the 15th of October to visit friends, and had not been there twelve hours before it came on her. We did not get away from there until the 9th of November, and the last bad spell passed off on the morning of the 9th. We arrived home in two days, and she has had nothing of it since. So I venture an opinion that the climate has something to do with it. We have a cousin whom we met at Denver who has had it for twenty-one years; he felt better at Denver than he did up in the mountains; he escaped it. His attack comes on about six weeks earlier in the season than in the case of my wife."

The following will be of service to those who are seeking information in regard to the Lake Superior region.

Case of A. H——, Milwaukee :

"September 23, 1875.

"This year I visited the Lake Superior region, and moved around in order to find the best points. I found a large number there. The great difficulty is lack of accommodations; but at two or three places I will mention they are good, and the climate the very best.

"Escanaba, L'Ause, and Marquette have been named as exempt, but I consider them too low, and the surroundings uninviting. Ishpeming, only fifteen miles from Marquette and the Lake, is nearly one thousand feet higher, and the mines there are worth a visit alone. A first-class house, 'The Barnum,' will give superior accommodations at \$14 per week; exempt from hay-fever. Houghton, on Portage Lake, the centre of the copper district, affords good accommodation at the same price, also exempt from hay-fever.

"At Calumet is located the largest copper-mine in this or any other country, and it is the best point in the Lake Superior region for hay-fever victims—but no accommodations. At Eagle River there are very fair accommodations and exemption. In the places named one can pass a week or two very satisfactorily. Trout-fishing at all the places. When attacked this year upon my return, I gave the quinine treatment a thor-

ough trial, taking two grains of powder three times daily, and using a spray in the eyes, nostrils, face, etc., without any good effect. Asthma set in as soon as I reached home, and I found relief from that in the Turkish bath—breaking it up in a week.”

The effects of different latitudes on the symptoms are well described in the following communication.

Case of F. D. A——, Cincinnati, O. :

“October 9, 1875.

“Spent from August 17th to September 25th in Bethlehem, New Hampshire. Was not quite so free from symptoms of hay-fever as the previous year at the same place. Most annoying symptom stoppage of nostrils.

“No asthma ; none of the symptoms severe.

“Left Bethlehem September 25th ; traveled to New York City, arriving there the same evening. Spent the night and the next day there without any inconvenience or aggravation of symptoms. Left New York for Cincinnati the evening of the 26th by the Pennsylvania Railroad. Was attacked by asthma within an hour after leaving New York, with wheezing noise in breathing and great irritation of mucous membrane ; continued while passing through Philadelphia, Pittsburgh, and Columbus, and after reaching Cincinnati asthma lasted for six days ; moderate severity, passing off October 2d ; succeeded by a cough lasting four or five days. Am now (October 9th) about well, only some stoppage of nostrils.

“Last year I traveled from Bethlehem to Cincinnati about the same date, but by a more northerly route, through Albany, Buffalo, and Cleveland, and had no symptoms either during the journey or after arriving at Cincinnati. I am inclined to attribute the difference rather to the latitude than the season. The weather was more favorable this year than last during my journey. In the natural course of the disease in a non-exempt region I should have been quite rid of asthma before September 26th, and have remained with only a cough. This year I seem to be through the two last stages (those which naturally come from September 1st to October 1st) in a mild form and a shorter time than usual, and long after the normal date. I had almost the same experience in 1870, landing in New York about September 22d, after a sea-voyage, and traveling through Virginia to Knoxville, Tennessee.”

Case of J. E. N——, Centre Brook, Conn. :

“November 5, 1875.

“I spent some six weeks in pursuit of relief, partly at Lake George, mostly in the celebrated Bethlehem, and there not because of relief afforded, but for the fellow-feeling in an abundance of sympathy. I experienced two good days there, viz., September 14th and 15th ; the other

portion of time led me to the conclusion that Bethlehem is played out for hay-fever patients—too much cultivation of the soil and general improvements.

“What we want is some vast wilderness, free from innovations of culture or refinement, like unto the interior of the Adirondacks.

“Last year I found entire relief there, and would like to meet the hay-fever associates with their honored secretary in the fragrant wilderness next year.”

From the above case we learn that even places supposed to be exempt may not serve equally well for all persons, or for the same persons different years. It is clear from the experience of this one case alone that those who vaunt the efficacy of those places where they happen to be relieved, and those who condemn favored places that do not suit them, are equally at fault.

In contrast with the experience of Mr. N—— we may place that of E. S. M—— :

“October 28, 1875.

“Having been tormented with hay-fever from my childhood, being the subject also of chronic catarrh, and of a throat disease developed some years since after an attack of hay-fever, I came last year to Bethlehem, to try one more experiment.

“Very much of an infidel at first, I waited for the 15th of August, as of yore, with mortal dread. It came and left me well ; still I doubted, however, and felt the sword suspended over me till the 23d arrived—the decisive day. How would this leave me? Joyful record! it closed even as its predecessors had done, and I was redeemed.

“Is it any marvel that ever since Bethlehem has seemed to me another Eden ; that in the fullness of my felicity I should chant again and again the rapturous strain of the Oriental :

“‘Oh! if there be an Elysium on earth,
It is this, it is this!’”

The statement that hay-fever is never found beyond the Mississippi is contradicted by the experience of Philip Reade, U. S. A. :

“FORT LEAVENWORTH, September 23, 1874.

“I have had a five weeks’ siege of this annoying complaint (hay-fever), hence the especial interest I have in your work. During the first week of August last my official duties carried me about one thousand miles

from here, latitude 34° north, longitude 109° west, and afterward to Fort Wingate.

"At the former station symptoms resembling what is called 'a cold in the head' developed themselves. At Wingate the post surgeon informed me that asthmatic complaints were not unusual in that section to unacclimated persons, and predicted hay-fever for me. It chanced that at this time some seven hundred tons of hay were being turned over to the East at the post.

"I am a native of Lowell, Massachusetts, and have been accustomed of late years to high altitudes. Never experienced disagreeable sensations at elevations of 14,000 feet, and did not, and do not, believe that mere altitude occasioned the protracted sneezings, pains in upper chest, flushings, watering of the eyes, nose, etc. Cold water, in which common salt had been dissolved, snuffed into the nostrils, afforded some relief. Inhalation of fumes of iodine and ammonia gave me no benefit.

"At Santa Fé the symptoms continued, also at Denver, Colorado; reaching here tried quinine, and am now recovered; am doubtful whether this is due to change of location or to the medication."

In reply to my inquiry, Lieutenant Reade sent the following communication:

"SAN DIEGO, CAL., June 6, 1876.

"DEAR SIR,—I am anxious to get away from here within a fortnight, because my experience of last July has taught me that hay-fever will get hold of me even here if I don't make tracks for the more elevated interior, as Prescott, Arizona.

"Don't think it is indigenous here. My own case originated camping on a hay-field, between Forts Wingate and Tulerosa, New Mexico, July to August, 1874; latitude 34° to 35° north, longitude 31° to 32° west from Washington—elevation unknown.

"San Diego is not an exempt district for me. Am thirty years old; have been in the army since before my maturity; weigh one hundred and ninety pounds; sanguine temperament; florid; have served in all sections of the United States; rugged health; mine is the only case in my family; July and August are my only bad months; take 'cold in head' easily; some causes, as dust, etc., produce an attack in a few minutes, resembling hay-fever, but never in cold weather; capacity is affected by the complaint; am better on cool days. I know Santa Fé, New Mexico, to be an exempt region. Quinine treatment; snuffing salt and water—no good.

Truly,

"PHILIP READE."

Another case not fully relieved in Bethlehem was the following

Case of S. E. S——, Haverhill, Mass. :

"October 21, 1875.

"I spent four weeks in Bethlehem ; did not find entire relief ; came home the 16th of September, and was attacked with hay-fever that night, and was very sick indeed—never had so violent an attack in my life. I suffered severely for two weeks."

The beneficial action of sulphur is illustrated by the following case of J. G. K—— :

Boston, September 26, 1874.

"This year I have tried sulphur with entire success : a bit as big as a pea put in the mouth when the paroxysm is coming on, and kept there till relieved. It is tasteless, and does not dissolve in the mouth ; and, so far as I can perceive, must operate by the fumes rising to the eyes and nose. It has been a great comfort to me this year, never failing in a single instance to quiet the symptoms. During the season of the disease I was driving about in Maine and New Hampshire, some of the time in the hay region of Maine and in haying-time."

Case of Mrs. C. M. M——, N. Y. :

"October 6, 1875.

"I have the hay-fever in its worst form, and have suffered more this year than I have in thirty-five years. I was in Bethlehem last autumn, and escaped ; left the 8th of October perfectly well ; took cold in Boston, and had a severe attack when I returned ; did not get over it until April."

In the above case the protractedness of the symptoms is noteworthy. The patient probably suffered from a bronchitis, a sequel of hay-fever proper.

Case of A. S. H——, Chelsea, Mass. :

"September 19, 1874.

"Something over a year ago you gave me a slip of paper in which it was stated that a saturated solution of quinine would relieve the trouble. I have tried the remedy this fall with perfect success. I was at Jefferson from the 20th of August until September 1st (saw you at the Twin-Mountain House), and of course escaped it there, but on my journey home was taken violently ; but upon arriving at my house I applied the remedy, and found some relief. The next day I had it a little, but the continued application of the remedy soon dispelled it ; so that since the third day of September I can say that not more than a dozen sneezes in all have escaped me ; neither was there any more than ordinary need to use handkerchiefs.

"I make three applications daily to my nostrils with a camel's-hair brush, viz., one in the morning, at night when I return from business, and upon retiring."

The above case is a sample of what may sometimes be expected from a local application of quinine alone. Unfortunately such brilliant results are exceptional.

A typical instance of that form of hay-fever that occurs in constitutions otherwise sensitive and nervous is that of W. M. Davis, St. Paul, Minn., whose case is previously reported :

"ST. PAUL, MINN., *October 24, 1875.*

"I left Syracuse for this city in time to reach it on the 19th of August (my hay-fever commencing on the 20th, annually).

"I have been, I may say, almost entirely exempt from it, having had but very few symptoms, and those in the mildest possible form. I have come to consider my autumn catarrh as a secondary evil compared with the aggravated form of the dyspepsia from which I suffer, and I came to Minnesota as much on account of the relief I expected to experience as regards my dyspeptic trouble as on account of hay-fever. I have not been disappointed in my anticipations, and am gaining in my general health slowly but surely.

"I am perfectly satisfied myself that hay-fever is the result of nervous troubles, and that it as well as my dyspepsia was brought on by too close application to my business of stenographic reporting. I have renounced writing any more short-hand, and expect to recover my health in time. The climate of St. Paul is delightful, and I am satisfied that those suffering from autumn catarrh can not find a place in the United States which will afford them greater relief. I think it fully equal if not superior to the White Mountains ; and, from my experience with Bethlehem, I believe that I am qualified to be a judge."

It seems that the United States Hay-Fever Association is not the first organization of its kind, as the following letter demonstrates.

Case of Judge G—— :

"CHICAGO, *September 24, 1875.*

"Our society was formed under the name of the 'Hay-Fever Brigade,' in September, 1871. A Mrs. Ely was the secretary, and has all the papers, and I have no copies. The fire in our city occurred the next October. Mrs. Ely went East, and many of the members were scattered,

and we have since held no regular meetings. The objects contemplated were similar to those sought by your society.

"On consultation with the most prominent of those connected with our organization we have concluded that it is wise to have but one parent society, with such auxiliaries as may be found from time to time, and that yours should be that one.

"It will concentrate all the information which may be obtained, and allow a comparison of facts from all parts of the country.

"You will have to modify your statement of exempt districts very considerably. 1st. Canada is not exempt. 2d. The region south of James River is not exempt; so far from it, that some of the worst cases we have had at Mackinac [Mackinaw] were from Kentucky, Nashville, and Memphis; it seems more virulent in cases from that region than in persons farther north.

"I went last year to Marquette, on Lake Superior; had it when I left home, and found the air so strong I was forced to go to Mackinac; others who have been there, and arrived before the period of disease, found relief.

"As you observe, this year all those who delayed their visit to Mackinac until the disease was upon them did not get rid of it for some days, and in some cases it was two weeks; all who went there before the attack came on had no symptoms.

"Last year, when the wind had blown continuously from the south for two weeks, slight symptoms were felt by some. I think the reason of its appearance at Mackinac this year is from the luxuriance and rankness of vegetation in the West. The disease has taken on more of the asthmatic form this year than I have ever observed before. My experience contradicts Prof. Beard's theory: instead of the attack being preceded by debility, etc., I am more vigorous before, physically and mentally, than at any other time.

"I have had for several years in May, and sometimes coming in April, a low nervous fever, which hangs on until summer commences, which I think connected with the disease. Patients came to Mackinac from Chautauqua Lake this year."

Judge G— apparently contradicts himself, stating in one sentence that he is unusually vigorous just before an attack, and in the next that he has during the spring a "low nervous fever," which appears to be a part of the disease. It must, however, be conceded that in many cases the patients never feel better than just before an attack. The same is true of sick-headache; the symptoms sometimes burst suddenly on one like a clap of thunder in a clear sky.

Case of A. H—— :

"SCRANTON, PA., October 4, 1875.

"My attack of hay-fever comes between the 10th and 25th of August. This year I was attacked at Saratoga the 14th, and went immediately to Twin-Mountain House. When I reached Montpelier, where I was obliged to spend the Sabbath, I was immediately relieved. Riding on the cars on Monday brought on a slight attack, which was relieved at the Twin-Mountain House.

"I remained at the latter place four weeks with comfort. Occasionally I would have a return of symptoms, not severe, owing, I suppose, to the excessive heat of this year at that place, the smoke from the woods, and the dust. The damp night-air is injurious to me even there, but only out of doors. I left there on the 14th of September—a week too early; traveled with comfort to Boston, had a slight attack there, which has continued more or less with the later symptoms of the disease till the present time, but with very little discomfort. My experience is that a week's later stay at the mountains relieves me entirely there and after my return. My theory of the disease is a constitutional susceptibility the primary cause, atmospheric poisons the occasion.

"These atmospheric poisons first affect the membranes of the air-passages, and are introduced into the system, and poison that until expelled by some shock to the system, such as spasmodic cough, paralysis of the face or other part of the body, pneumonia, eruptions of the skin, etc. I have had the cough usually, once the facial paralysis, and the eruption, generally only one at a time. I find most relief to nostrils and throat at night, especially in earlier and later stages, from dry camphor placed in a thin cloth on the pillow, so that I breathe the air over it either into the nostrils or throat. My physician here, Dr. R. A. S——, has suffered terribly this year; for years before he usually had attacks of dyspepsia and indigestion at this season of the year. This year those entirely disappeared, and hay-fever is the substitute.

"The attacks which I have had this year have caused no suffering or itching in my eyes, although they would appear red."

Facts worthy of note in the above case are the eruption, the facial paralysis (an unusual symptom), the relief obtained by the use of camphor, and especially the disappearance of dyspepsia on the appearance of hay-fever in the case of R. A. S—— (see p. 92).

The necessity of staying at the exempt region until the time for the attack has passed by is shown by the case of G. T. E. S—— :

"SING SING, N. Y., November 15, 1875.

"In answer to your circular, I would state that my attack of hay-fever this year was more severe than any year before.

"It began on the 18th of August—usually it begins on the 20th—and for two weeks the demon within me raged furiously. On the 3d of September I felt I could stand it no longer, and started for the White Mountains. Having never been there before, I was a stranger; but having seen in one of Mr. Beecher's letters that Littleton was among the exempt districts, I stopped there at the 'Oak Hill House' for four days. During the first three I found no relief; on the fourth I did feel somewhat relieved. Thence I went to Bethlehem, where I remained till the 24th of September. There for the most part I was entirely free from the disease, having but one attack of asthma after arriving there, and only slight symptoms of catarrh occasionally. I never felt better in my life than while I remained in Bethlehem.

"On my return home the hay-fever came on me again in full force, the asthma the first night after, and the catarrh within twenty-four hours; the first did not leave me till the 9th of October, and not till about the 15th was I entirely free from this most distressing complaint.

"It usually leaves me about the 1st of October, running about six weeks. So, although I was rid of it while among the White Mountains, I gained but little in the end by leaving them too soon. I never tried to run away from it but once before, and then I went to Edgartown, Martha's Vineyard. When out upon the ocean, fishing or otherwise, I was entirely free from it, but the hour I came back to my hotel it came on again."

Case of Mrs. T. W. M——, Northampton, Mass. :

"October 15, 1875."

"Circumstances having prevented my being at Bethlehem this summer, I remained at home, and tried to make myself as comfortable in my misery as possible. I began by literally shutting myself up in the house, never going out in the daytime, or exposing myself to the sunlight in the least.

"My bedroom (which is on the lower floor) I changed for one upstairs, and kept the windows and doors of that room closed from early in the afternoon till next morning, when it was opened and thoroughly aired till the hour for again closing. I also added flannel undergarments to my clothing when the hay-fever first began to make its appearance.

"The result was that this summer I have been able to pass more comfortable nights than ever before while the disease was upon me."

The example set by Mrs. M—— is one that all who are unable to leave home would do well to follow as far as possible. No better hygiene for many cases of hay-fever could be conceived of than that here suggested.

A delightful summer resort, and one which is growing in popularity, is Bethel, Maine. Theoretically it should be a region comparatively free from hay-fever; and the following communication of J. E. M——, Boston, speaks very decidedly on that point:

"September, 1874.

"My wife is a sufferer from this malady, and has been for more than ten years. In 1870 and '71 she went to Bethlehem, with very good results; but the climate did not seem to agree with her altogether, and she could not even go to Littleton without experiencing a severe attack from it. In 1872, '73, and '74 we have been to Bethel, Maine, where she has been perfectly free from it; the climate is delightful, much softer than at Bethlehem, so that her general health is much better than formerly, she is not obliged to take as many precautions, and has paid no attention to the malady whatever as regards going on excursions or driving out in any direction, going down the river as far as Rumford Falls, some twenty miles, without the least trouble. Hers is not an isolated case, as every summer there have been a few there, and they all say they are much better there than on this side of the mountains.

"It is necessary that they should reside on 'Bethel Hill,' that is, in the village, as it would not answer to reside along the interval near the river. No more beautiful place than Bethel can be found in New England, and it has been a source of wonder to me for three years past that people can go to the barren hills of New Hampshire when such a paradise lies within much easier reach. I am fully of Starr King's opinion, that Bethel will be appreciated by and by."

The following case, assuming that the sufferer does not confound common colds with her hay-fever, is certainly very remarkable. It would appear that in her case exposure to irritants will bring on protracted attacks at any season of the year.

Case of Mrs. E. E. H——, North Cambridge:

"October, 1875.

"I spent the hay-fever season at Oak Bluffs, and was entirely free from an attack; but I do not have asthma—several of my friends who had asthma had an attack of it there. I did not go to Bethlehem, because after coming from there last year I was not as well as usual—bilious, and lacking strength; so I thought the air there was not just the best thing for me; and, too, I had one severe attack of hay-fever after another—no sooner better of one than another came on—until I went to Florida the

first of February. During the summer after my return I had nothing of the kind until my throat was irritated and poisoned by the dust in the camp-ground when I first went to the Vineyard ; but that was not hay-fever—it was carelessness ; I should have known better. I was quite sick for three days ; but took a grain of quinine every four hours, and recovered from the attack better than I ever did from a cold, for colds I generally have as hard as I can. Since my return this fall I have been having what so many horses and people suffer from—sore throat, hoarseness, and wretched good-for-nothingness ; not quinine or any thing else had any effect to throw it off. Strong beef-tea, cream, and lime-water, equal parts, seemed to do me more good than any thing, being very nourishing and easily digested.

“I am one of the unfortunate ones who have the attacks at any time, and sometimes at almost every time during the year, and medicines have no power to prevent them. A change of air, if I go to the right place, is the only thing that prevents them.”

It has already been shown that hay-fever symptoms of a local character, and lasting for a few minutes or hours, may be brought on by exposure at any season of the year ; but prolonged attacks coming on in this way in the winter are very rare.

Among the many evidences that the hay-fever was comparatively rare until within the last quarter of a century, and that it is on the increase, is the interesting letter of E. E. B——, Dayton, Ohio :

“October, 1875.

“H—— D——, of Lebanon, Ohio, had the disease somewhat earlier, and corresponded with eminent physicians in this country and in Europe for some years before he got a name for it. A medical magazine was sent him from England with the name and symptoms fully described some thirty years ago. For some time he and my wife were the only ones known in the Miami Valley. Now there are one hundred or more in Dayton alone. She has found much relief, not absolute freedom, at Cresson, on the Pennsylvania Railroad, on the top of the Alleghany Mountains. Some who were there for the same purpose were quite free while on the mountains ; but going down to Altoona, 700 feet lower and twenty miles distant, would have the disease in its worst forms while remaining there, but on returning to Cresson would be quite free in a few hours. Oakland, on the same mountain, on the Baltimore and Ohio Railroad, and Deer Park, six miles from Oakland, are thought by many to be better for this class of patients than Cresson. Mrs. B. has been comparatively free at the sea-shore. She spent the hay-fever season of 1872 in St. Paul, Minn., and was entirely free, not even able to get up a sneeze, and would

travel on the cars in that state with perfect impunity. She met there a large number of hay-fever subjects, who were equally free. One gentleman from Dayton, Ohio, who had moved to St. Paul to be free from the disease, and had had no symptoms for three years, had a slight touch that year, and this year, I learn, had it badly there ; still others escaped entirely.

"Several hay-fever patients from Dayton went to Europe in the spring of 1874, and returned to New York October 20th, 1875. They had no symptoms of the disease while abroad. One of the party, however, after landing in New York, had it quite severely for a week."

Case of Mrs. A. B. R. S—— :

"WORCESTER, *October 18, 1875.*

"I was in Bethlehem, N. H., from the 16th of August until the 17th of September last. I also spent several weeks of the hay-fever season at the same place in 1873 and 1874. I had no symptoms the first two seasons, but suffered slightly the last."

Case of C. C. R—— :

"NEW BEDFORD, *November, 1875.*

"I have been at Dodge's, two miles and a half from the village of Whitefield, three successive years. I have also spent one season at Jefferson. I considered myself equally free from symptoms of the disease in either place.

"At the risk of offending a devotee of Bethlehem, I will state that I was, with seven other patients, at Dodge's one season, all of us wholly free from the cold.

"Reports came to us that many were not absolutely free in Bethlehem, and that one person left for Goram, at which place she was entirely relieved. This year I had in Whitefield a slight touch of the disease for three days. On other days I was annoyed by it for half an hour after rising. It is also a singular fact that during July and August I experienced many mornings the same discharge and occasional sneezing on rising—an experience I have never had at home previous to the 17th of August. Perhaps I should state here that my cold has never gone lower than the pharynx, and my nights are never disturbed by it. Until within three days I have not been wholly free from an occasional sneeze and stinging nostrils, but I have never before had the least trace of it at this late date. I was one year surprised in the cars immediately on starting for Detroit, Michigan. I was one week making the journey, suffering from the cold all the time. The first morning in Detroit found me entirely free from it."

Case of Mrs. W. F——, Lawrence, Mass. :

"*November, 1875.*

"After having had hard frosts, frozen ground, and three snow-storms, left Whitefield October 19th, well and strong.

"While passing Winnipiseogee Lake commenced sneezing—every victim knows full well what a succession of sneezing means. Stayed over night at Franklin Falls, on the Winnipiseogee River, and while there was very much pressed for breath; severe pain through my chest.

"The next night was spent at Windham, N. H., in a dry, airy location. There I could breathe well, but my head was in a sad condition. The following day, October 21st, I came home, and for the next eight days seemed to add to my cold. Instead of pain in head and limbs, as formerly, had a severe soreness; and when I moved or attempted to walk, my limbs felt as if made of wood, or as though belonging to some other person.

"October 29th, ten days after second attack, there was a perceptible change, and have been gaining ever since. Cough some yet, and am quite hoarse. Have had this serious trouble eighteen years, but have had it lighter this year than ever before; have had it as hard as I had grace to bear."

The change from the later to the early form, of which an example is given in the following communication from L. H——, East Pembroke, is, I believe, not so frequent as the reverse, from the early to the later :

"Just fifty years this 1875 mother had her first attack of fall hay-fever, which lasted from six to eight weeks, and then left, returning each year since late in August or in September.

"About forty-five years ago, after a very severe sickness in winter and spring, the early hay-fever, or rose cold, attacked her in June, and has returned each year since. In those early years of the disease nothing was known of it in this vicinity, and the physicians did not even give it a name.

"Only two or three persons had the disease near here for many years.

"It has been considered in this vicinity an unusually severe season for hay-fever patients."

Case of Mrs. R. W. M—— :

"MANCHESTER, *October 12, 1875.*

"I escaped the hay-fever this summer by staying at Whitefield, which is an exempt region. I returned about two weeks too soon, and had an attack, but not a very severe one.

"I am anxiously waiting for a heavy frost; then I am in hopes to be better. I suffered this summer before going away as much as ever before."

Mr. A. J. M——, of Reading, writes :

"Those in Reading usually afflicted have not suffered this year as much as usual."

Case of W. R——, of Bellows Falls :

"October 25, 1875.

"I spent the last hay-fever season in the lower province of Canada : one month at Tadousac, at the mouth of the Saguenay River, the balance of the time at Quebec.

"I consider these locations preferable to the mountains."

Case of A. P. C——, Fairfield Valley, N. C.:

"September 18, 1875.

"I was a yearly victim of the rose cold, as I called it—a fearful influenza that destroyed the comfort of my summers. A severe attack of typhoid-fever brought me to death's door, but restoration to health seemed to give new vitality to my system, and the rose cold did not return for five or six years. In 1872 I was again prostrated by it. A summer at the sea-shore, Maine, seemed to aggravate all the symptoms.

"Columbia, S. C., has been my home recently, and in May the air was so laden with the perfume of flowers that I was quite prostrated by the disease.

"'Flee as a bird to the mountains,' was the advice of a friend ; and July and August have been spent among the mountains of North Carolina. One day's ride in the cars from Columbia to Walhalla, and then thirty miles in a mountain wagon, takes one by a winding road and gradual ascent to Fairfield Valley ; and here we are on the Heights, for, though a valley, it is 3600 feet above the level of the sea, encircled by mountains of the Blue Ridge. Catarrh is unknown in these regions ; my hay-fever has disappeared, and not a sneeze has awakened the echoes of these romantic glens."

The above case is another illustration of the fact that hay-fever may be relieved or aborted by the supervision of acute disease. It shows also that the malady is not confined to the Northern States.

Case of L. R——, Plymouth, Mass. :

"October 5, 1875.

"I do not know that my hay-fever has been more severe this season than usual, though my sister, who was with me and is also a sufferer, thinks Bethlehem not so favorable a change as Jefferson, where we have been for the previous two years. We lost some time this year by trying the air of Nantucket, which we had reason to hope might prove beneficial, but at the end of a week became satisfied that it would not answer.

"The journey to the mountains, which we greatly dreaded, was made in comparative comfort by the almost constant use of a wet handkerchief over the mouth and nose. I consider this a great discovery, for car-traveling has been one of the most distressing of all things heretofore."

Case of S. F. S——, Pittsburgh, Pa.:

"October 4, 1875.

"I report:

"1. Complete exemption at Cresson, Mountain House, Cambria Co., Pa.

"2. Returns on my return prompt and decisive.

"3. Action maintained with much vigor, and resulting in disturbance of my throat and enfeebling of voice.

"This is a result never experienced before, and the stranger because during the exempt period my voice in speaking and singing was more than usually clear and strong.

"Perhaps over-use, then, has made the trouble.

"4. I use no inhalations or appliances of any kind, except fresh air and cold water."

Case of E. S. J——:

"I always suffer more from the prostration than any thing else, at the time and afterward; sometimes it has lasted all winter. I had that, but not as badly as usual, and I think a good deal of it came from other causes. When I commenced having the hay-fever, it came on in the first week of August; it has gradually come later and later, till this year it was the 26th before the sneezing began.

"I do not think, however, that the sneezing is the beginning of troubles with me. The prostration begins before. It did not, however, this year, for I was very careful to rest—all I felt the need of—which I think is one reason of my having it more lightly than usual. For three years I have had it less severely than formerly; it was also of shorter duration this year. I came October 2d, merely for a change and rest, having been home on account of sickness in the family all summer."

Case of C. W. L——:

"FERNANDINA, FLA., September 4, 1875.

"From my earliest recollection I have, till within a few years, been troubled from the middle of August till about the last of September with what seemed a severe cold in my head.

"I was born in Boston, June, 1837; lived in Massachusetts till October, 1861; enlisted in the 22d Massachusetts; served in Virginia about twelve months; passed the winter of 1862 and 1863 in Boston; then went to Port Royal, S. C.; lived there till 1867, when I removed to this place, where I have lived ever since. Have been in Massachusetts but once during the period my disease made its appearance, and then in 1871, subsequent to the 15th of September; that visit made no perceptible difference in the symptoms. Each succeeding year of my residence South (particularly in Florida) the disease has appeared in the milder form; until now I scarcely notice it, except after careless exposure to a strong draught of cold air or during the prevalence of a northeast storm."

The above case is encouraging to those who remove South, showing that the attacks become less and less severe.

Thinking that a comparison of English and American cases might be of interest, I have made the following extract from the work of Mr. Blackley. The cases are not reported with sufficient fullness to be of themselves of much value in determining the nature of hay-fever; but so far as can be learned from all possible sources the malady in England is in every way identical with the early form of hay-fever in America. The mistake of Mr. Blackley, as indeed of many of the writers on hay-fever, is in generalizing from too limited a number of facts, and especially in laying undue stress on the symptoms and peculiarities of his own case:

"Patient 1.—A military officer who has spent some years in India. In answer to my inquiries in reference to his case he says:

"I was in India for some years, and during that time I had no hay-fever while in the plains; but one season I took an excursion into the Himalaya Mountains, about the month of June, and I found that on many days when I was in parts of the hills, which from their elevation correspond with the heat and climate of England, and where crops were growing somewhat of the same nature as European cereals, I had violent attacks of hay-fever, although no grass was cut for hay-making and the grain crops were nearly ripe. The cultivation, however, was very scanty and partial—small patches leveled in the hills about the native villages—so that I was more inclined to attribute the attack to the temperature than to the cultivation. Long grass, however, was growing in places on the hills."

"Patient 2.—The wife of a military officer, residing in the south of England. In this case the patient says:

"The attacks always begin some time in May, and occasionally continue until September, but in London they have ceased about the middle or end of August, and they certainly seem to follow the growth of the grass; but roses affect me so severely that if I gather them a very severe attack instantly supervenes, worse than from any other flower. The attacks are very severe in a hay-field during hay-making, and the illness does not seem to cease with the hay-making season, but the climax of suffering, hitherto, has been from the middle of June to about the middle of July."

"*Patient 3.*—Sir ——, Bart., in speaking of the exciting causes of the attack in his case, says :

" 'The attacks generally begin about the 4th of June and cease about the second week in July. In wet weather I seldom or never suffer. The hotter the weather (particularly if there is no wind) the worse I am. I am quite certain that, in my case, hay-fever is caused by the minute particles which come from not only grass, but flowers and trees of all sorts.'

"*Patient 4.*—In this case the patient is a medical man holding the rank of surgeon-major in the British army. Having spent many years in India, and being well acquainted with the climate, his testimony is on this account very valuable. In answer to my inquiries about his experience of the disease in India and in England, he says :

" 'I have suffered from hay-fever for about thirty-five years. I have had it both in India and in England. The period at which the attacks come on is not fixed, the date of the attack depending more on the grass ripening late or early than on any other circumstance. They always begin toward the end of the hay season when the grass is fully in flower, and cease slowly and gradually—not directly—on gathering in the grass. In India the attacks come on after the rains, about August or September. 'Changes of atmospheric temperature do not increase or decrease the severity of the symptoms; I have been attacked as severely in the cool climate of Simla as in the heat of the plains. At sea I have escaped the attacks, and also at some northern stations in India—at Kurrachee, for instance.'

"*Patient 5.*—A lady residing in one of the midland counties sends me the following particulars of her case :

" 'I have suffered from hay-fever twelve or fourteen years. The attacks generally commence some time in May, but they come on earlier in a warm season than a cold one, and they are sure to come on with the first scent of spring flowers. May blossom, or a bean-field in bloom, is as trying as a hay-field, and the elder flower is the worst of all. The attacks sometimes cease before the hay is all gathered in; a cool gray day restores to temporary health, while heat and sunshine cause great suffering, but the symptoms are less severe after rain unless the weather is very close.'

"*Patient 6.*—A young lady, aged twenty-two, residing in a suburb of Manchester. In this case the disease first came on four years ago. As far as she could observe there had been no change in the constitutional tendencies or in the habits. Each year the attack has commenced at the time the grass has begun to come fully into flower, and as long as the patient has remained under the influence of the emanations from flowering grass the attacks have continued. Each year, however, since the disease commenced, the patient has, a few days after the attack has shown

itself, removed to the sea-side. On every occasion this change of locality has brought relief in a few hours ; and in the course of twenty-four or thirty-six hours the patient has described herself to be, what she considered, almost well.

"On one occasion Blackpool, on the Lancashire coast, was selected as a place of residence during the usual period of the attack. On two other occasions, I believe Llandudno, in North Wales, was the place resorted to.

"*Patient 7.*—A lady, aged fifty-three, sister to a clergyman of the Church of England. This patient has suffered from the disease for about twenty-four years. When the attacks first came on she resided near Sheffield, but during the last eight years she has resided near Manchester. As far as the patient can now remember she suffered from both the catarrhal and asthmatic form of the disease at the commencement, but of late years the asthmatic form of the complaint has been the most marked.

"The attack generally begins, in a mild way, about the latter end of May. This goes on increasing in severity up to the middle or latter end of June, and from this time up to the middle of July the symptoms are somewhat severe ; they then gradually decline, and by the time the second or third week in August has arrived she is free from the disease. The disorder has attained its maximum severity generally about the middle of July—sometimes earlier and occasionally later.

"Although grass in flower appears to be the most frequent cause of the attacks, the patient has thought that flowers having a strong odor have brought on the symptoms.

"On one occasion, when on a visit to a relative who resided near Bradford, in Yorkshire, she was out walking in a meadow where grass in flower was being mown, about the latter end of the month of May. She had not proceeded far when an asthmatic attack came on, and she found it necessary to leave the neighborhood as soon as possible.

"Atmospheric changes of temperature do not increase or decrease the severity of the symptoms. She has sometimes felt as well in the latter part of August, when the weather has been excessively hot, as she has been at any part of the year—so far as hay-fever is concerned. She has also often found that a room with the windows closed, and the heat greatly increased by this means, has been much less injurious than it has been when the windows have been opened and the room cooled.

"Rain always mitigates the severity of the attacks.

"*Patient 8* (Mr. Blackley's own case).—I have suffered from hay-fever for more than twenty years, but the exact time at which the disorder first commenced I can not now remember. The attacks at first lasted only a few days, and then declined rapidly ; and they seemed then, to me, to be in some way dependent upon the commencement of warm weather. For several of the earlier years the attacks came on about the middle or latter end of June, but I noticed that a cold sea-

son would delay the time for a week or ten days. Up to the present time the disease has only taken on the catarrhal form with me, but I have once or twice artificially brought on slight asthmatic attacks. From the circumstance of my noticing that the advent of the disorder seemed always to occur when the heat began to be such as warranted the designation 'summer weather,' and particularly from the fact that a walk in the country on a hot, sunny day, while the attack of hay-fever was on me, was invariably attended by a great increase of the severity of the symptoms, I was inclined to regard heat as the principal cause of the disease. After hearing of Bostock's case, I was still more inclined to take this view of the cause; but circumstances which occurred subsequently considerably altered my opinions.

"In the year 1857 I had occasion to go down to the sea-side* for a day or two. The hay had been nearly all gathered in in the neighborhood of Manchester, and I was, as a consequence, just beginning to feel free from my usual summer illness. When I had got within the distance of six or eight miles from the sea-shore, I felt that my old enemy was coming on again, and before three hours had elapsed I was suffering as severely as I had done during any part of the attack I was just recovering from. The disorder did not at all abate for the time I then remained (two days). The heat was certainly not greater than it had been in Manchester.† I returned home at the end of the time named, and was not a little surprised to find that, from the time I reached Manchester, my hay-fever rapidly disappeared.

"In about five days I made another journey to the same part of the sea-coast, and when about the same distance from the sea-shore that I was when the attacks came on on the former journey, I began again to have all the characteristic symptoms of hay-fever; but, strange to say, when I got to my journey's end these again quickly disappeared, and I was not troubled again during my stay of seven or eight days.

"I was considerably puzzled with the very erratic manner in which the disease had come and gone after the usual period of the attack was over; but, in thinking the matter over, I remembered noticing that, at my first journey, the hay grass for some miles inland was uncut, and also that much of it was in flower. Another concurrence of circumstances also impressed me much at the time, and helped very greatly to alter my views with regard to the action of heat, namely, that during my first stay there was a land wind blowing, and that during my second stay the wind was from the sea nearly all the time, while the heat was somewhat in excess of what it had been during my first visit.

* "Blackpool, on the Lancashire coast.

† "I made memoranda of the heat at the time, but these I have unfortunately mislaid, and can not now find them. I have, however, a distinct recollection of the fact that the heat was slightly less than it was on my leaving Manchester.

"Another circumstance, which occurred in 1859, helped still further to cause me to doubt whether heat had any direct influence in producing the symptoms in my own case. A bunch of one of the grasses (I think it was the *Poa nemoralis*) had been gathered by one of my children and placed in a vase in one of the rooms at home which I seldom entered. I happened, however, to notice the vase in going into the room a few days after the grass had been placed there, and on disturbing it to examine it a small cloud of pollen was detached and came in close proximity to my face. I commenced sneezing violently in the course of two or three minutes, and had what I considered a rather smart, though short, attack of my usual early summer disorder. As this grass flowers much earlier than the majority of the grasses cultivated for hay-making, and as there was little or no grass in flower in the meadows at the time, I was satisfied that the symptoms were due to the pollen which had escaped accidentally during the examination. From this time my experiments, I may say, commenced, and these have been carried on at intervals as opportunity has offered. With what result I must leave the reader to judge."

NOTICE.

The author takes the liberty of requesting those into whose hands this work may fall to inform him of any facts of interest and importance relative to any of the different forms of hay-fever, whether they seem to tell in favor of or against the theory here advocated.

Information is especially desired in regard to the following points:

1. Whether the early and middle forms are indigenous in the Southern States.
2. Whether any form is indigenous in South America or California.
3. Whether in this country females are more liable to the early form than males.
4. Whether benefit is derived from any of the remedies and methods of treatment suggested in this work.

Those who wish to aid in obtaining a census of hay-fever sufferers may communicate with Frank B. Fay, Esq., 186 Washington Street, Boston, Mass.

THE END.



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